

RECORDS OF  
BIG GAME

THIRD EDITION

Rowland Ward

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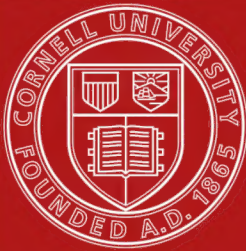
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# RECORDS OF BIG GAME









Yours faithfully  
Ronald Ward

Mr. President







# RECORDS OF BIG GAME

WITH

THEIR DISTRIBUTION, CHARACTERISTICS,  
DIMENSIONS, WEIGHTS, AND

## MEASUREMENTS OF HORNS ANTLERS, TUSKS, & SKINS

THIRD EDITION

BY ROWLAND WARD, F.Z.S.

AUTHOR OF 'THE SPORTSMAN'S HANDBOOK,' ETC.



*WITH ABOUT 217 ILLUSTRATIONS*

LONDON

ROWLAND WARD, LIMITED

"THE JUNGLE," 166 PICCADILLY, W.

1899

*m/k*



THIS BOOK IS DEDICATED  
TO THE  
SPORTSMEN OF THE WORLD  
WITHOUT WHOSE DETERMINED PLUCK AND LOVE OF TRAVEL THESE RECORDS  
COULD NOT HAVE BEEN PRODUCED, NOR COULD THE AUTHOR  
HAVE SPENT A LIFETIME IN THE ART HE HAS  
TRIED TO ADVANCE





## PREFACE TO THIRD EDITION

IN the present edition, the finest known specimens of antlers, horns, tusks, and skins are, so far as possible, recorded. It has been found impracticable in some instances to verify the measurements of trophies in distant parts of the world; and such records must accordingly be taken on the responsibility of their respective owners or other persons who have been good enough to measure them. It is much to be regretted that one pair of hands and a steel-tape are not responsible for the measurements of all the actual "records." One of the many difficulties in connection with this compilation is due to the circumstance that different measurements of the same specimen are often sent me; this sometimes arising from the use of common tapes or string, which are absolutely unreliable unless checked at the time by a steel measure. In this connection I may mention that I shall at all times be pleased to cause such measurements to be carefully verified at my establishment in Piccadilly. With the horns of freshly killed hollow-horned ruminants an allowance for shrinkage should be made when comparing with older trophies. An average specimen of an *Ovis ammon* horn, for instance, will frequently shrink half an inch in length and proportionately in girth after it has left the field.

With the *Cervidæ* many difficulties have arisen as to comparison; and I may point out that although length of antlers is invariably put at the top of the list, other particulars such as *number of tines*, *general symmetry*, *spread*, and *weight of antler*, are in many instances the making of a good trophy. Small specimens are frequently noted in order to include measurements from different localities, as well as to record horns of certain species, such as *Ovis poli*, etc., in which recently shot specimens do not approach those of the record example.

I have to thank many sportsmen and naturalists all over the world for the help they have afforded me.

To Mr. A. O. Hume, and Prince Henry of Liechtenstein, my special thanks are due.

In the present volume great care has been taken with regard to the accuracy of the numbers; and, considering that there are so many thousand measurements, it will be readily understood the task attempted has been one of no ordinary difficulty.

The new illustrations, numbering over fifty in the present volume, are nearly all produced direct from photographs of notable examples.

A new feature in this edition is the introduction of a short description of the leading characteristics and the exact geographical distribution of each species and race. This, it is hoped, will render the volume of additional value as a work of reference to the sportsman.

ROWLAND WARD.

## PREFACE TO SECOND EDITION

SINCE the publication of the first edition of this work under the title of "Horn Measurements," I have been successful in collecting much new and valuable data bearing upon the measurements of horns and other statistics of Big Game. For this information I am to a considerable extent indebted to numerous sportsmen, and to the curators of some of the most important museums of the world, who have been kind enough to measure all the finest specimens in the collections under their charge. In addition to this valuable help, for which I desire to express my grateful acknowledgment, I have had a record carefully prepared of all the most remarkable specimens registered, as well as those that have from time to time passed through our hands. I am indebted to Mr. H. A. Bryden for much of the descriptive matter of the South African game. There will also be found embodied with all these new records numerous illustrations of typical heads, skulls, and horns drawn especially for this new edition.

In addition to this supplementary information, the new edition will be found to contain more exact localities than have hitherto been recorded, and we continue in constant correspondence with sportsmen in almost every part of the world with a view of still further completing our records.

R. W.





## PREFACE TO FIRST EDITION

My object in producing this book is to start a record of Horn Measurements of the Great Game of the World. I only regret that it was not commenced at an earlier date, as in that case it would have been more complete. In my earlier life I had but little help, and often worked thirty hours at a stretch ; my work necessitated attention to specimens that demanded immediate treatment, and my love for reproducing life-like studies prevented me from keeping records.

The measurements presented here have been taken principally by one hand, and, for that reason, I value them the more. The dimensions from acknowledged authorities I naturally am not responsible for. This work is not designed to be in any way a scientific treatise, but is prepared for sportsmen and scientific men who are interested to see comparable measurements at a glance. I think these have not been produced in like form before. These records can be added to, and I shall feel indebted to sportsmen who will contribute any authentic record measurements. It must be borne in mind that many trophies which have passed through my hands are now scattered all over the world, and the dimensions of them, for the time, are

not recorded here. Some that I give now are fine measurements, some are only ordinary statistics, many are of new species altogether; these last being mainly a result of the quite recent opening up of Africa. The advice noted as to the way to measure must be dealt with strictly, for many persons measuring by different methods produce untrustworthy record. We have tried to be fair in producing the statistics, taking them rather under than over the mark; and the tape has not been pressed into corrugations of horns, but carried outside, over all inequalities.

R. W.

## ABBREVIATIONS AND SIGNS

— Owner's measurements or other known authority.

♂ Male.                      ♀ Female.                      ... Unrecorded.

R, Right horn or antler.                      L, Left horn or antler.

*Measurements* are on the outside of the longest horn from base to tip ; with Deer from the bottom edge of burr, or coronet, to the highest tip point, except where notified to the contrary.

*Circumference* is at the base ; with Deer above brow tine ; in the Red Deer and Wapiti group between bez and trez.

*Length* is expressed in inches, when not otherwise noted.

*Weights* taken in the field should be accepted as approximate, and, unless mentioned, are of adult males.

*Heights* are in most cases taken at the shoulder of adult males (see p. 480).

*P.Z.S.* = *Proceedings of the Zoological Society of London.*



## LIST OF ILLUSTRATIONS

	PAGE		PAGE
Abyssinian Buffalo Skull and Horns . . . . .	395	Cape Hartebeest Horns . . . . .	117
Addax Skull and Horns . . . . .	278	Caspian Red Deer Antlers . . . . .	14, 32
African Elephant Head . . . . .	446	"    Red Deer Head . . . . .	34
"    "    Tusks . . . . .	448, 449	Chamois Horns . . . . .	314
"    Rhinoceros Head . . . . .	434	Chanler's Reedbuck Head . . . . .	200
"    "    Skull and Horns . . . . .	433	Chiru Head . . . . .	212
American Bighorn Head . . . . .	365	Chital Head . . . . .	72
"    Bison Skull and Horns . . . . .	405	Clarke's Gazelle Head . . . . .	254
Anoa Head . . . . .	402	"    "    Skull and Horns . . . . .	252
Arabian Ibex Head . . . . .	348-349	Coke's Hartebeest Head . . . . .	115
"    Tahr Skull and Horns . . . . .	330	Congo Buffalo Skull and Horns . . . . .	397
Arna Head . . . . .	398	Cyprian Mufion Head . . . . .	385
Arui Head . . . . .	363		
Banting Head . . . . .	416	Dorcas Gazelle Head . . . . .	224
"    and Gaur Skulls and Horns . . . . .	417	Duiker Horns . . . . .	146
Barasingh Head . . . . .	36	East Caucasian Tur Head . . . . .	358
Bear . . . . .	473	Eland Head (Bull) . . . . .	309
Beira Antelope Skulls and Horns . . . . .	258	"    "    (Cow) . . . . .	307
Beisa Head . . . . .	272	Elk Antlers . . . . .	9, 12
Bharal Head . . . . .	360	"    "    Skull and Antlers . . . . .	8
Blackbuck Head . . . . .	205	European Bison Skulls and Horns . . . . .	403
"    Horns . . . . .	202	"    Mufion Head . . . . .	386
Blue Duiker Head . . . . .	149	Extinct Giant Fallow Deer Skull . . . . .	59
Boar Head . . . . .	424	Fallow Deer Head . . . . .	56
"    Tusk . . . . .	422	Four-horned Antelope Head . . . . .	153
Bongo Horns . . . . .	287	Fringe-eared Beisa Head . . . . .	275
Bontebok Head . . . . .	129		
Brindled Gnu Head . . . . .	139	Gaur Head . . . . .	410
"    "    Horns . . . . .	136	"    "    Skull and Horns . . . . .	414
Bubaline Hartebeest Horns . . . . .	106	Gayal Skull and Horns . . . . .	415
Buffon's Kob Horns . . . . .	183	Gemsbuck Horns . . . . .	269
Burchell's Rhinoceros Horns . . . . .	438	Giraffe Skull . . . . .	101
"    "    Skull and Horns . . . . .	441	Goa Head . . . . .	217
Burmese Banting Head . . . . .	416	Grant's Gazelle Head . . . . .	259
Bushbuck Head . . . . .	282, 286	"    "    Skull and Horns . . . . .	243
Cape Buffalo Horns . . . . .	391	Gray Rhebok . . . . .	190
		Gray's Waterbuck . . . . .	181

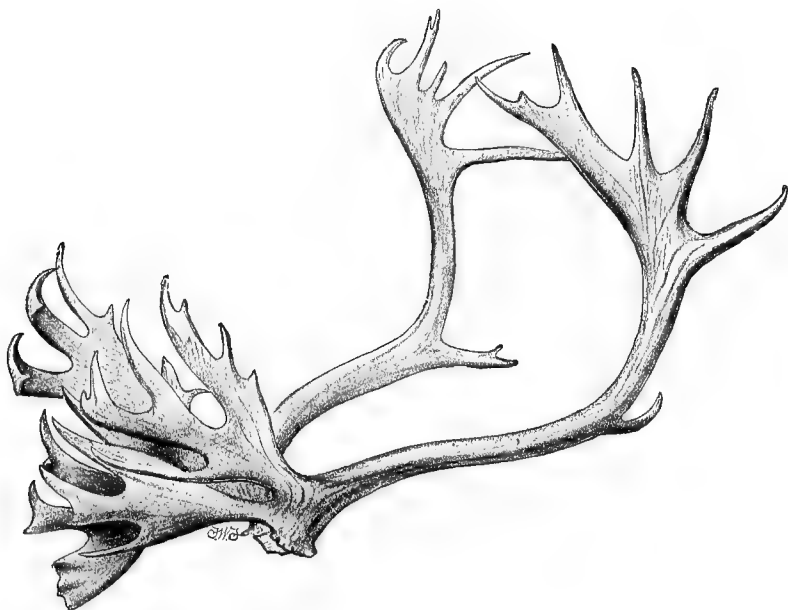
	PAGE		PAGE
Greater Kudu Head . . . . .	295	Neumann's Hartebeest Head . . . . .	111
"    "    Horns . . . . .	299	"    "    Skull and Horns . . . . .	111
Grysbuck Head . . . . .	167	Nilgai Skull and Horns . . . . .	280
Hangul Head . . . . .	36	Nilgiri Tahr Head . . . . .	331
Himalayan Goral . . . . .	317	Nyala Horns . . . . .	288
"    Ibex Head . . . . .	342	Nyasaland Gnu Head . . . . .	137
"    Serow Head . . . . .	321		
"    "    Skull and Horns . . . . .	320	Oribi Head . . . . .	160
"    Tahr Head . . . . .	328		
Hog-Deer Head . . . . .	70	Pekin Sika Head . . . . .	54
Hunter's Hartebeest Head . . . . .	124	Pelzeln's Gazelle Head, male . . . . .	234
Hybrid Hartebeest Skull and Horns . . . . .	120	"    "    Skull and Horns, female . . . . .	234
Impala Head . . . . .	209	Père David's Deer Antlers . . . . .	89
"    Skull and Horns . . . . .	206	Persian Gazelle Skulls and Horns . . . . .	220
Indian Elephant Skull and Tusks . . . . .	442	Peters's Gazelle Skulls and Horns . . . . .	246
"    Gazelle Head . . . . .	228	Phillips's Dik-dik Skull . . . . .	156
"    Rhinoceros Heads . . . . .	430	Prong-horn Head . . . . .	104
Jackson's Hartebeest Head . . . . .	119	Przewalski's Gazelle Skull and Horns . . . . .	219
"    "    Skull and Horns . . . . .	120	Puku Head . . . . .	188
Japanese Sika Antlers . . . . .	51	Red Deer Antlers (Caucasus) . . . . .	32
Javan Rusa Skull and Antlers . . . . .	68	"    "    (Exmoor) . . . . .	21
Johnston's Gnu Head . . . . .	137	"    "    in the Castle at Moritz- burg . . . . .	30
Kamschatkan Bighorn Skull and Horns . . . . .	369	"    "    (Old English) . . . . .	23
Kirk's Dik-dik . . . . .	158	"    "    (Park) . . . . .	22
Klipspringer Head . . . . .	170	"    "    (Scotch) . . . . .	16
"    Skull and Horns . . . . .	170	Reedbuck Head . . . . .	192
Korrigum Hartebeest Head . . . . .	126	Reindeer Antlers . . . . .	I, 2, 3
Lesser Kudu Head . . . . .	303	"    Head . . . . .	4
Loder's Gazelle Head . . . . .	236	Roan Antelope Head . . . . .	265
Lichi or Lechwe Head . . . . .	184	Rocky Mountain Goat Head . . . . .	327
"    "    Horns . . . . .	186	Roe Deer Head (Siberian) . . . . .	86
Lichtenstein's Hartebeest Head . . . . .	121	"    Skull and Antlers . . . . .	88
Livingstone's Antelope Skull and Horns . . . . .	165		
Malayan Sambar Antlers . . . . .	65	Sable Antelope Head . . . . .	264
Marco Polo's Sheep Head . . . . .	371	"    Skull and Horns . . . . .	260
Markhor Horns (Astor) . . . . .	334	Saiga Head . . . . .	211
"    "    (Cabul) . . . . .	338	"    Horns . . . . .	210
"    "    (Pir Panjal) . . . . .	333, 336, 337	Salt's Dik-dik Head . . . . .	155
"    "    (Suleman) . . . . .	338	Sambar Antlers . . . . .	61
"    Head . . . . .	340	Sassaby Head . . . . .	133
Marsh-Deer Antlers . . . . .	97, 98	Schomburgk's Deer Antlers . . . . .	77
Mesopotamian Fallow Deer Head . . . . .	58	Senegambian Buffalo Skull and Horns . . . . .	396
Mongolian Gazelle Skulls and Horns . . . . .	220	"    Eland Horns . . . . .	312
Mountain Reedbuck Head . . . . .	198	Shapu Head . . . . .	380
Mule-Deer Head . . . . .	93, 95	Shou Skull and Antlers . . . . .	40, 55
Muntjac Antlers . . . . .	81	Siberian Argali Skull and Horns . . . . .	375
"    Head . . . . .	83	"    Skulls and Horns . . . . .	370
Musk Ox Head . . . . .	389	Sinaitic Ibex Head . . . . .	348
		Sind Ibex Skull and Horns . . . . .	351
		Sing-Sing Waterbuck Skull and Horns . . . . .	178

	PAGE		PAGE
Situtunga Horns . . . . .	292	Uganda Kob Skull and Horns	185
Soemmerring's Gazelle Head, ♂ . .	247	Urial Head . . . . .	383
Spanish Ibex Head . . . . .	354		
Speke's Gazelle Head, ♂ . . . . .	233	Virginian Deer Antlers . . . . .	91
"                    "    ♀ . . . . .	231		
Springbuck Head . . . . .	223	Waller's Gazelle Head . . . . .	255
"                    Horns . . . . .	214	Wapiti Head . . . . .	43
Steinbuck Head . . . . .	168	Wart-Hog Head . . . . .	429
Swamp-Deer Antlers . . . . .	75	"                    Tusks . . . . .	427
Swayne's Dik-dik Head . . . . .	156	Waterbuck Head . . . . .	177
"                    Hartebeest Head . . . . .	112	"                    Horns . . . . .	173
		West African Harnessed Antelope Horns . . . . .	290
Takin Frontlet and Horns, ♀ . . . . .	325	"                    Hartebeest Horns . . . . .	107
"                    Skull and Horns, ♂ . . . . .	324	West Caucasian Tur Skull and Horns . . . . .	356
Thameng Antlers . . . . .	78	White-bearded Gnu Head . . . . .	141
Thomson's Gazelle Head, ♂ . . . . .	241	"                    "                    Skull and Horns . . . . .	142
"                    "                    Horns, ♀ . . . . .	240	White-tailed Gnu Head . . . . .	144
Tibetan Argali Head . . . . .	377	"                    "                    Horns . . . . .	143
Tiger . . . . .	480		
"                    Skin . . . . .	459	Yak Head . . . . .	409
Topi Hartebeest Head . . . . .	127	"                    Skull and Horns . . . . .	407
Tora . . . . .	110	Yarkand Stag Skull and Antlers . . . . .	39
"                    "                    Horns . . . . .	109		





# RECORDS OF BIG GAME



Antlers of Male Woodland Reindeer. From a specimen in the British Museum.

## **REINDEER or CARIBOU (*Rangifer tarandus*).**

DISTINGUISHED from all other deer by the presence of antlers in both sexes ; those of males being complex, with the brow tines palmated and often unsymmetrical, and the bez, or second tine, also generally expanded. The muzzle is entirely covered with hair, the ears and tail are short, the throat has a fringe of long hair, and the coat is very thick and of a nearly uniform clove-brown colour, with some white in the region of the tail, and on the under parts and legs. The false or lateral hoofs are unusually large and spreading ; and there is a patch

of long white hair covering a gland on the hock, but none on the hind cannon-bone. Height at shoulder reaching to 4 feet 10 inches (Newfoundland); weight of a full-grown Scandinavian stag 30 stone, clean (Abel Chapman); antlers average about 30 lbs. per pair.

Reindeer inhabit the circumpolar regions of both hemispheres, in Europe including Scandinavia, Lapland, and Northern Russia; their



Antlers of Male Woodland Reindeer from Nova Scotia.  
From a specimen in the British Museum.

southern limit varies from  $52^{\circ}$  to  $54^{\circ}$  N. latitude, while they extend to between  $80^{\circ}$  and  $81^{\circ}$  northwards.

Six varieties, or local races, of reindeer are recognised: (1) the Scandinavian reindeer (*R. tarandus typicus*) of Northern Europe and Asia, which is a rather small animal with moderately expanded antlers; (2) the Spitzbergen reindeer (*R. tarandus spetzbergensis*), characterised by the peculiar form of the nasal bones of the skull; (3) the woodland

reindeer (*R. tarandus caribou*) of the forest districts of Arctic America, distinguished by its large bodily size and the short, much-palmated antlers; (4) the Newfoundland reindeer (*R. tarandus terræ-novæ*),



Side view of Antlers of Male Barren-Ground Reindeer. From a specimen in the British Museum.

which is closely allied to the last, but with even more complex antlers and some differences in coloration; (5) the Greenland reindeer (*R. tarandus grænlændicus*), which is apparently very similar to the sixth variety; and (6) the barren-ground reindeer (*R. tarandus arcticus*), from the open country north of the forests in America, a very distinct

animal, characterised by its small bodily size, and the great length and simple form of the antlers, in which, except on the brow tine, there is scarcely any palmation. Reindeer heads are probably some of the most difficult to measure, owing to the different curves the top points frequently present. Females have smaller and lighter antlers than males.



Head of Male Newfoundland Reindeer. From Dr. J. A. Allen.

Abel Chapman, writing in the *Field*, says two or three year old bucks run between 16 and 20 stone; but one big stag he shot was made out (perhaps erroneously) to scale well over 30 stone, clean. The measurements of the antlers have been separated for the convenience of sportsmen.

REINDEER or CARIBOU (*Rangifer tarandus*)—*continued*.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
62	5½	39	49½	20 + 17	Canada . .	Mrs. Macintosh.
57½	5½	13½	...	13 + 7	Arctic Region . .	British Museum.
57½	5½	33½	44½ (outside)	20 + 16	Do. .	Sylvester Browne.
54½	4½	20½	...	11 + 13	N. America	The late Captain Sir John Franklin, British Museum.
-54	6½	21½	32½	12 + 11	?	Paris Museum.
52½	5½	15	26½	17 + 12	N. Canada	J. Talbot Clifton.
52	4½	28½	38	7 + 7	Do. .	David T. Hanbury.
151½	4½	40½	48½	17 + 14	Hudson Bay .	Sir Edmund G. Loder, Bart.
49	4½	24½	32½	7 + 9	N. America . .	Hon. Walter Rothschild.
248	6½	11½	25½	17 + 15	Newfoundland	Sir Edmund G. Loder, Bart.
47½	5½	32½	...	19 + 12	N. America .	A. Murray, British Museum.
46½	6½	16½	28	32	British Columbia	J. Turner-Turner.
45½	5½	31½	33½	13 + 12	Newfoundland	F. C. Williamson.
45½	4½	19½	31	15 + 13	N. Canada . .	David T. Hanbury.
44½	5½	34	37	...	Newfoundland	C. H. Akroyd.
44	5½	18½	30	18 + 13	Do. .	Vice - Admiral Sir William Kennedy.
44	5½	19	26½	17 + 14	Do. .	Lieut. A. E. Allgood, R.N.
43½	5½	40	41½	16 + 11	Do. .	St. George Littledale.
-42½	7½	33½	38½	22 + 18	Do. . .	R. Gordon Smith.
-42½	...	...	49½ (outside)	24	Do. .	General R. L. Dashwood.
42	6½	...	18½	33	Alaska . .	Earl of Lonsdale.
42	5½	36½	39½	20 + 12	Newfoundland	Q. C. Colmore.
41	5½	20½	28	15 + 9	Do. . .	Lieut. -Col. Hon. W. Coke.
41	6	35	33	20	British Columbia .	Major C. C. Ellis.
40	6	31½	35½	19 + 14	Newfoundland .	Vice - Admiral Sir William Kennedy.
39	5½	...	23½	17 + 14	Do. . .	Sir Victor Brooke's Collection.
39	6	31	39½	15 + 10	Do. . .	Captain C. E. Stracey.
39	7	28	31	20 + 19	Do. . .	Vice - Admiral Sir William Kennedy.

1 Woodland Caribou.

2 Barren-ground.

REINDEER or CARIBOU (*Rangifer tarandus*)—*continued*.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
39	7	29	31 $\frac{1}{4}$	18 + 16	?	Duke of Westminster.
39	5 $\frac{3}{4}$	...	...	11 + 11	British Columbia	Sir Peter Walker, Bart.
39	4 $\frac{3}{4}$	26	26 $\frac{3}{4}$	15 + 15	Newfoundland	D. F. Moir, R.N.
-39	7 $\frac{5}{8}$	33	31 $\frac{7}{8}$	29 + 22	Do.	Lord Thurlow.
38	5 $\frac{1}{4}$	19 $\frac{1}{2}$	21 $\frac{1}{2}$	17 + 14	British Columbia	T. P. Kempson.
38	6	36	35 $\frac{1}{2}$	39	Newfoundland	Lieut. F. C. Osborne, R.N.
37 $\frac{3}{4}$	6 $\frac{1}{4}$	23	23	11 + 10	British Columbia	W. S. Power.
37 $\frac{1}{2}$	5 $\frac{3}{4}$	12	20	14 + 12	Canada	J. W. Osborne.
37 $\frac{1}{2}$	5 $\frac{1}{2}$	...	29	...	?	Otho Shaw.
37 $\frac{1}{4}$	5 $\frac{5}{8}$	...	24	27	Newfoundland	Dr. Wm. Tait.
37	5 $\frac{3}{4}$	21 $\frac{1}{2}$	25	12 + 12	British Columbia	H. G. Walker.
-37	...	...	40 <sup>(outside)</sup>	43	Newfoundland	General R. L. Dashwood.
37	4 $\frac{1}{4}$	14 $\frac{3}{4}$	25	15 + 13	Do.	Captain H. H. Grenfell, R.N.
36 $\frac{1}{2}$	5 $\frac{1}{2}$	28	25	8'9	British Columbia	H. G. Walker.
36 $\frac{1}{2}$	5 $\frac{1}{2}$	19	22	10 + 9	Newfoundland	V. L. A. Campbell, R.N.
36 $\frac{1}{2}$	6 $\frac{3}{4}$	30	31 $\frac{3}{4}$	19 + 18	Do.	A. Wilson, R.N.
36 $\frac{1}{2}$	6 $\frac{1}{8}$	26 $\frac{1}{8}$	28 $\frac{1}{2}$	17 + 15	British Columbia	Sir Peter Walker, Bart.
36	5 $\frac{5}{8}$	44	...	15 + 12	Do.	J. V. Colby.
36	5	23	27 $\frac{1}{2}$	12 + 11	Do.	Captain F. Molyneux.
35 $\frac{1}{2}$	6 $\frac{3}{4}$	18 $\frac{1}{4}$	29 $\frac{1}{2}$	13 + 11	New Brunswick	P. N. Graham.
35 $\frac{1}{2}$	5 $\frac{1}{4}$	32 $\frac{1}{4}$	34 $\frac{1}{2}$	12 + 10	Newfoundland	G. C. W. Crispin, R.N.
33 $\frac{1}{2}$	5 $\frac{1}{4}$	23	26	15 + 11	British Columbia	Sir Peter Walker, Bart.
-32 $\frac{1}{2}$	8 $\frac{1}{2}$	12 $\frac{1}{4}$	18	17 + 10	Canada	James J. Harrison.
32 $\frac{1}{2}$	5 $\frac{1}{2}$	32 $\frac{1}{2}$	...	12 + 12	?	Major R. Hallowes.
-32	5 $\frac{1}{2}$	...	..	14	British Columbia	Theodore Roosevelt.

REINDEER or CARIBOU (*Rangifer tarandus*)—*continued*.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
160	5 $\frac{5}{8}$	38 $\frac{5}{8}$	41 $\frac{1}{8}$	22 + 15	?	Sir V. Brooke's Collection.
-59 $\frac{1}{2}$	7	38	44	15 + 16	Norway . . .	J. Whitaker.
-59	4 $\frac{1}{2}$	42 $\frac{1}{2}$	46 (outside)	7 + 5	Do. . .	H. J. Elwes.
-58	6	30 $\frac{1}{2}$	37	33	Jotunheim, Norway .	S. Ratcliff.
-55 $\frac{1}{8}$	6 $\frac{1}{2}$	38	43 $\frac{1}{8}$	18 + 8	Sundal Fjelds, Nor- way	Capt. Gerard Ferrand.
54 $\frac{1}{2}$	4 $\frac{7}{8}$	33 $\frac{1}{4}$	40 $\frac{3}{4}$	15 + 13	Norway . . .	J. H. Thomas.
54	5	22	41 $\frac{3}{4}$	16 + 11	Do. . . .	Kenneth M'Douall.
-51	6 $\frac{1}{10}$	...	...	...	Rundane, Norway .	Capt. John Marriott.
-51	5 $\frac{1}{4}$	29	...	25	Norway . . .	Abel Chapman.
50 $\frac{3}{8}$	4 $\frac{7}{8}$	24	29 (outside)	16 + 13	?	H. R. H. the Duke of Saxe- Coburg and Gotha.
-49 $\frac{1}{2}$	4 $\frac{7}{8}$	20 $\frac{3}{4}$	34 $\frac{1}{4}$	13 + 12	Norway . . .	H. J. Elwes.
49	4 $\frac{1}{4}$	25	36 $\frac{1}{2}$	18 + 15	Do. . . .	J. H. Barnard.
♀ 47	4 $\frac{5}{8}$	23	29	17 + 9	Do. . . .	Kenneth M'Douall.
46 $\frac{1}{2}$	6	21 $\frac{1}{2}$	26 $\frac{1}{2}$	37	Do. . . .	Hon. Walter Rothschild.
-46	5	29	38	42	Jotunheim, Norway .	S. Ratcliff.
44	4 $\frac{1}{4}$	20 $\frac{1}{4}$	32 $\frac{1}{2}$	12 + 9	Norway . . .	Col. C. B. Harvey.
-42	6	26	40 $\frac{3}{4}$	22 + 13	Do. . .	R. Rankin.
41 $\frac{1}{8}$	4 $\frac{3}{4}$	...	24 $\frac{1}{2}$	12 + 9	Spitzbergen . . .	W. D. James.
41	4 $\frac{1}{2}$	26 $\frac{1}{2}$	30 $\frac{3}{4}$	12 + 12	Do. . .	Sir W. Martin Conway.
-40 $\frac{1}{2}$	4 $\frac{1}{2}$	29	30	11 + 8	Norway . . .	Lewis J. Cadell.
38 $\frac{3}{4}$	4	25 $\frac{1}{4}$	...	7 + 5	Do. . . .	British Museum.
38	5 $\frac{1}{2}$	21 $\frac{1}{2}$	...	15 + 13	Do. . . .	Do.
37	4 $\frac{1}{4}$	18	20 $\frac{1}{2}$	15 + 11	E. Spitzbergen . .	Arnold Pike.
36	4 $\frac{1}{4}$	24	26	17 + 11	Do. . . .	Do.
-36	6 $\frac{1}{2}$	34	33 $\frac{1}{2}$	23 + 20	Lapland . . .	Dublin Museum.
<sup>2</sup> -34 $\frac{1}{2}$	6 $\frac{3}{4}$	31	...	33	Norway . . .	Abel Chapman.
-31	5 $\frac{1}{2}$	23	20	19 + 18	Do. . . .	J. Benett-Stanford.

<sup>1</sup> Perished antlers.

<sup>2</sup> A very old buck.



Skull and Antlers of Male Elk.  
From an Alaskan specimen in the possession of the Duke of Westminster.

**ELK or MOOSE (*Alces machlis*).**

The largest member of the deer tribe, distinguished by its ungainly form, long limbs, broad, produced, and flabby muzzle (all of which, except a small triangular patch below the nostrils, is covered with hair), the presence of a pendulous hairy organ (the so-called "bell") on the throat of the males, and the form and position of the antlers in that sex. These latter are set on the skull with their bases at right angles to the middle line of the face, the beams having neither brow nor bez tines, but expanding after a short distance into a broad palmation, carrying a number of snags on the outer border; in young elk each antler is divided in a fork-like manner into a small front and a larger hind portion. The main hoofs are long and pointed, and the lateral pair large: there is a gland and tuft of hair both on the hock and hind cannon-bone, the latter being situated high up. The tail is very short. From birth to old age elk are uniformly coloured; the general tint of the hair, which is long, coarse, and somewhat brittle, varying



from yellowish gray to deep blackish brown, and being usually darker in American than in European examples. The height varies from 5 feet 9 inches at the shoulder in Scandinavian examples (Sir H. Pottinger) to as much as 6 feet 6 inches in American specimens (General R. L. Dashwood); the weight from 900 to 1400 lbs., that of the antlers being about 60 lbs.

Elk inhabit the forests and marshy districts of Scandinavia, Eastern Russia, Siberia, Northern Russia, and thence eastwards through Siberia



Antlers of Male Elk.

north of about latitude 50° N. to Amurland; while in America (where they are invariably known as moose) at the present time they are found in Alaska, Montana, Nova Scotia, and New Brunswick. Although many sportsmen say they can be distinguished by the antlers and the colour of the skin, the European and American elk appear so similar that they do not seem worthy of being regarded as even distinct local varieties, but for convenience in comparing the European and American measurements are separated.

An elk killed at Meswicz, Lithuania, by Count Scheibler measured

	Feet.	Inches.
Length tip of nose to tip of tail . . .	9	$\frac{1}{2}$
"    "    "    "    root . . .	8	6

## RECORDS OF BIG GAME

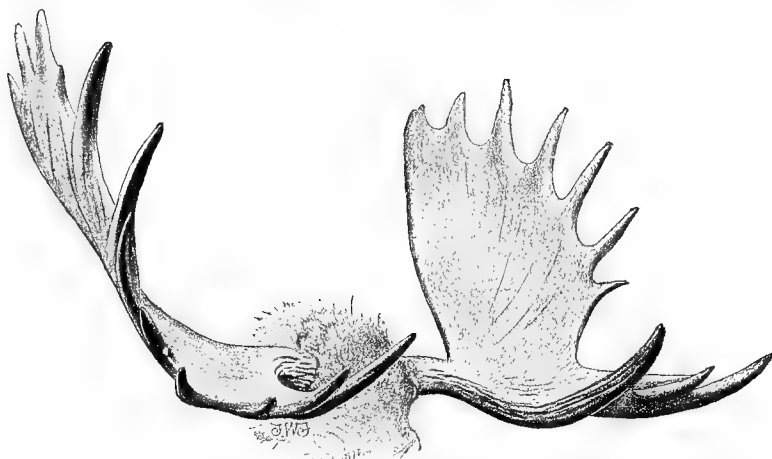
	Feet.	Inches.
Crest to nose . . . . .	2	7
Height at withers . . . . .	5	9
" " quarters . . . . .	6	5 $\frac{1}{2}$
Girth quarters . . . . .		19 $\frac{3}{4}$
Round thigh . . . . .		7 $\frac{1}{2}$
Below knee . . . . .	3	6 $\frac{1}{2}$
Round neck near the ears . . . . .	4	9
Estimated weight 1500 lbs. See antlers, 27 $\frac{1}{2}$ , etc.		

Length to longest tine.	Circumference above burr.	Tip to Tip.	Greatest width.	Breadth of Palm.	Points.	Locality.	Owner.
<sup>1</sup> -55 $\frac{1}{2}$	7 $\frac{1}{2}$	...	70 $\frac{1}{4}$	29 ?	...	Alaska . .	W. W. Hart.
-55	11 ?	37	69	21	21	Do. . .	F. B. Tolhurst.
-49	...	...	78 $\frac{1}{2}$	18	40	Yukon . .	W. F. Sheard.
<sup>2</sup> -48	10	...	69	15	32	Do. . .	Dall De Weese.
-47 $\frac{1}{4}$	9 $\frac{1}{4}$	37 $\frac{1}{2}$	72	16 $\frac{1}{4}$	20 + 17	Do. . .	Duke of Westminster.
44 $\frac{1}{2}$	10 $\frac{1}{8}$	49 $\frac{1}{2}$	66	14	17 + 14	Kenai Mts. .	Viscount Powerscourt.
-44	...	...	61 $\frac{1}{2}$	...	...	Canada . .	General R. L. Dashwood.
43 $\frac{1}{4}$	8 $\frac{1}{2}$	40	59 $\frac{1}{4}$	14 $\frac{1}{2}$	14 + 13	Manitoba . .	G. H. M. Banks.
43	9 $\frac{1}{2}$	22 $\frac{1}{2}$	47 $\frac{1}{2}$	12	11 + 11	Canada . .	Viscount Powerscourt.
-42 $\frac{3}{4}$	10	35 $\frac{3}{4}$	56	13 $\frac{1}{4}$	12 + 11	N. America . .	T. W. Wood, Jun.
-41	8 $\frac{1}{2}$	...	...	21 $\frac{3}{4}$	27	Chesincook, M.E.	Col. Hoselton.
-41	...	...	54 $\frac{1}{2}$	...	12 + 11	Canada . .	General R. L. Dashwood.
-41	...	...	65	24	14 + 13	Manitoba . .	Otho Shaw.
40	8	38	60	13	11 + 10	Canada . .	Viscount Powerscourt.
40	8	35	55 $\frac{1}{2}$	13	12 + 11	Maine . .	J. S. Braithwaite.
39 $\frac{7}{8}$	6 $\frac{1}{2}$	...	51 $\frac{3}{8}$	15 $\frac{3}{4}$	13 + 12	N. America . .	British Museum.
-39 $\frac{1}{2}$	8 $\frac{1}{2}$	...	39 $\frac{1}{2}$	13 $\frac{1}{4}$	...	Do. . .	Otho Shaw.
39 $\frac{1}{2}$	7	38	54 $\frac{1}{2}$	16	13 + 12	Canada . .	Sylvester Browne.
39 $\frac{1}{2}$	7 $\frac{3}{4}$	37	56 $\frac{1}{2}$	13 $\frac{1}{2}$	14 + 11	British Columbia	Sir Peter Walker, Bart.
39 $\frac{1}{4}$	7 $\frac{5}{8}$	33 $\frac{1}{2}$	49 $\frac{1}{8}$	11 $\frac{1}{2}$	12 + 10	N. America . .	J. Carr Saunders.
39 $\frac{1}{8}$	7 $\frac{5}{8}$	36 $\frac{1}{4}$	51 $\frac{3}{8}$	9 $\frac{1}{2}$	8 + 7	E. slopes of the Rockies	J. C. L. Knight-Bruce.
39	8 $\frac{1}{4}$	38 $\frac{1}{2}$	57	12 $\frac{1}{2}$	15 + 12	N. America . .	Sir Edmund G. Loder, Bt.

<sup>1</sup> Height at shoulder, 8 ft. 2 in. ?; skull horns, 68 lbs.; estimated weight, 2600 lbs.<sup>2</sup> Height at shoulder stated to be 7 ft. 8 in. ?

ELK or MOOSE (*Alces machlis*)—*continued*.

Length to longest tine.	Circumference above burr.	Tip to Tip.	Greatest width.	Breadth of Palm.	Points.	Locality.	Owner.
38½	7	...	52½	10½	11 + 10	N. America .	British Museum.
...	...	...	67	...	23	Yukon .	J. H. Whitehouse.
-38½	9½	44	66	14	28	New Brunswick	S. Decatur.
38½	6½	34	49½	9½	9 + 9	N. America .	Sir Victor Brooke's Collection.
38	7½	30½	47	12	12 + 12	British Columbia	Sir Peter Walker, Bart.
38	6½	...	59½	9½	11 + 11	?	H.R.H. the Duke of Saxe-Coburg and Gotha.
38	8	21½	57½	14	18 + 15	Manitoba .	C. H. Akroyd.
-38	11	50	61	14	26	New Brunswick	J. Bodkin.
-37½	8	...	51½	11½	14 + 13	Canada .	F. Ashby.
37½	8½	...	49½	11	21	?	Ernest Farquhar.
37½	7½	35	50½	11½	13 + 10	New Brunswick	Hon. Charles Ellis.
-35½	7½	33½	47½	11	12 + 11	Canada .	James J. Harrison.
-35½	8½	...	42½	...	10 + 9	Do. .	Paris Museum.
34½	8	39½	49½	10½	9 + 9	New Brunswick	P. N. Graham.
34½	6½	42	51½	9½	10 + 9	Canada .	G. Marchetti.
-33½	7	28	44	11	13 + 13	N. America .	Dublin Museum.
33	6	30	44	10	10 + 10	Manitoba .	Major C. S. Cumberland.
32½	7	29½	44	8	11 + 9	N. America .	Charles Makin.
-31½	7	...	...	...	14	Do. .	A. Rogers.
31½	...	...	51½	12½	...	?	Earl of Lonsdale.
-30	5½	...	40½	13	22	Montana .	Theodore Roosevelt.
28½	7½	35	49½	12½	11 + 11	New Brunswick	Hon. Charles Ellis.
27	5½	28	42	6½	6 + 7	Eastern slopes of the Rockies	Hon. F. Thellusson.
26½	6½	30	40	6	6 + 6	N. of Manitoba	P. B. Vander-Byl.

ELK or MOOSE (*Alces machlis*)—*continued*.

Antlers of Male Elk.

Length to longest tine.	Circumference above burr.	Tip to Tip.	Greatest width.	Breadth of Palm.	Points.	Locality.	Owner.
37 $\frac{3}{4}$	8	35 $\frac{3}{4}$	57 $\frac{3}{4}$	11 $\frac{1}{2}$	11 + 13	Norway . .	Thomas Bate.
33	8 $\frac{1}{2}$	36 $\frac{1}{4}$	51 $\frac{3}{4}$	15 $\frac{1}{4}$	10 + 10	Do. . .	Capt. Gerard Ferrand.
33	9	34	35	...	9 + 10	E. Prussia . .	H. R. H. the Duke of Saxe-Coburg and Gotha.
32 $\frac{1}{2}$	7 $\frac{1}{2}$	33	46	11 $\frac{1}{2}$	10 + 10	Sweden . .	Capt. Gerard Ferrand.
32	6	..	43 $\frac{3}{8}$	9 $\frac{1}{2}$	7 + 8	Russia . .	Sir Edward Caley, British Museum.
32	8 $\frac{3}{4}$	37 $\frac{1}{2}$	48	11 $\frac{1}{2}$	10 + 9	Nr. St. Petersburg	Prince Demidoff.
-32	7	...	52	9	9 + 9	Norway . .	} H. J. Elwes.
..	7	35	42 $\frac{1}{2}$	.	9 + 7	Do. . .	
-31	7	28	45		17	Do. . .	S. Ratcliff.
<sup>1</sup> 30 $\frac{3}{4}$	6 $\frac{1}{2}$	43	46	10 $\frac{1}{2}$	15	Do. . .	Abel Chapman.
30 $\frac{1}{2}$	8	27	40 $\frac{1}{2}$	9 $\frac{1}{2}$	10 + 7	Do. . .	Lieut.-Col. G. D. F. Sullivan.
30 $\frac{1}{8}$	7 $\frac{1}{8}$	29 $\frac{1}{2}$	44 $\frac{1}{2}$	10	9 + 8	Do. . .	Sir Victor Brooke's Collection.
29	6	30 $\frac{1}{2}$	42 $\frac{1}{2}$	7 $\frac{1}{2}$	11 + 9	Do. . .	Sir H. Pottinger, Bart.
29	6 $\frac{1}{2}$	31 $\frac{1}{2}$	39 $\frac{1}{2}$	6 $\frac{1}{2}$	10 + 9	Do. . .	Do.
29	7 $\frac{1}{2}$	...	43 $\frac{1}{2}$	10 $\frac{1}{2}$	24	Do. . .	Sir Peter Walker, Bart.
28 $\frac{1}{2}$	7 $\frac{1}{2}$	24 $\frac{3}{4}$	42	9 $\frac{1}{2}$	10 + 9	Do. . .	Sir H. Pottinger, Bart.

<sup>1</sup> Estimated weight, 90 stone.

ELK or MOOSE (*Alces machlis*)—*continued*.

Length to longest tine.	Circum- ference above burr.	Tip to Tip.	Greatest Width.	Breadth of Palm.	Points.	Locality.	Owner.
-28½	6	33½	43½	11	12 + 10	Lithuania	Prince Radziwill.
28	6¼	32	47	9	8 + 8	Norway .	Sir H. Pottinger, Bart.
28	7½	31½	38	10	12 + 10	Sweden . .	Viscount Powerscourt.
-27½	7	25½	33	8¾	5 + 5	Lithuania	Count Scheibler.
-27	6¾	30	39	...	20	Norway . .	S. Ratcliff.
27	6½	40	43½	...	8 + 7	Do. . .	J. H. Barnard.
27	6½	20½	38	9	8 + 6	Nr. St. Peters- burg	Prince Demidoff.
-26¾	8½	28½	41¾	9½	8 + 8	Norway . .	Sir H. Pottinger, Bart.
26½	6¼	25	38	6	9 + 7	Russia .	Lieut.-Col. Hon. W. Coke.
26½	6½	...	39¾	6¾	5 + 4	S. Russia .	British Museum.
26	6	27½	42½	7	7 + 6	Norway .	Lord Delamere.
26	6½	29	37	5	6 + 5	Do. . .	Sir H. Pottinger, Bart.
23½	5¾	...	35¾	5	5 + 3	Do.	E. N. Buxton.
23	6	27½	36	6	7 + 6	Sweden . .	Sir H. Pottinger, Bart.



Antlers of Caspian Red Deer. From a Hungarian specimen in the collection of Viscount Powerscourt. Counting from the skull upwards, the first tine is the brow, the second the bez, and the third the trez, above which come the surroyals, or crown. The main shaft is termed the beam.

#### RED DEER (*Cervus elaphus*).

The red deer of Western Europe is the typical representative of the genus *Cervus*, in which the antlers of the males are set on the skull at an oblique angle to the middle line of the forehead, and always have a brow tine, while they are generally more or less nearly cylindrical, although sometimes palmated. There is always a large bare portion on the muzzle, the face is long, the ears are generally large, and the tail is comparatively short, often extremely so. Although there is almost always a gland and tuft on the hind cannon-bone, usually situated high up, there is none on the hock itself. The coat may be spotted.

In the red deer the antlers are subcylindrical and complex, generally with a bez tine, and always with a trez, the number of points exceeding five, and the crown frequently forming a cup. The tail is relatively long and pointed, and there is a distinct light-coloured patch on the buttocks, which includes the tail; the general colour of the adult summer coat being reddish brown, and that of the winter dress grayish brown, while the young are profusely spotted.

Red deer, in the widest sense of the term, are inhabitants of Europe, North Africa, Asia Minor, and Northern Persia. In the typical red deer (*C. elaphus typicus*) of Western, Northern, and Central Europe, the antlers attain their maximum degree of complexity, sometimes having twenty or even more points, although in many Scotch examples the bez tine is wanting. In a park red deer killed at Spetchley Park the weight was 419 lbs. gross, and 216 when cleaned; while in one shot at Knowsley many years ago the clean weight was no less than 424 lbs. The height at the shoulder now reaches about 4 feet. H.R.H. the Duke of Braganza saw a continental stag shot which scaled 41 stone 10 lbs. two years ago, and last year H.R.H. shot a 10-pointer with a spread of 55 inches.

The Corsican red deer (*C. elaphus corsicanus*), of Corsica and Sardinia, is a very small race, with the bez tine of the antlers wanting, and the general colour of the upper parts dark brown in summer and blackish in winter. Nearly allied is the North African red deer (*C. elaphus barbarus*), which is of rather larger dimensions, with a grayish-brown streak down the middle of the back, and small irregular whitish spots on the flanks and sometimes on the back; traces of such spots being occasionally observable in the summer coat of does of the typical race. The bez tine seems to be very generally wanting.

The Caspian red deer (*C. elaphus maral*) is a large variety, described on page 33.

Lord Tweedmouth furnishes the following dimensions of his fine Scotch stag:—

Widest span over all,  $39\frac{1}{4}$  inches; span inside below cups, 34 inches; span outside below cups, 37 inches.

*Right antler*.—Length, 39 inches; length of brow,  $10\frac{1}{4}$  inches; of bez, 10 inches; of trez, 13 inches. Length of tines in cup, 10, 7,  $4\frac{1}{4}$  inches. Circumference at coronet,  $8\frac{1}{2}$  inches; between bez and trez,  $7\frac{1}{4}$  inches; above trez, 6 inches.

*Left antler*.—Length, 38 inches; of brow, 10 inches; of bez, 8 inches; of trez, 11 inches. Length of tines in cup, 8, 6, and 4 inches. Circumference at coronet, 9 inches; between bez and trez,  $7\frac{1}{2}$  inches; above tray,  $6\frac{1}{4}$  inches.

Shot, October 9, 1880. Weight, 21 stone 9 lbs.; clean, but stag was much run.



*From a Photograph by Whyte.*

Antlers of Red Deer killed by Lord Burton, with fully developed cups.

**a.—SCOTCH RED DEER.**

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight. st. lbs.	Locality.	Owner.
-41	7	22½	35	.	7+7	...	Inverness	W. H. Walker.
<sup>1</sup> -40	6	...	30	..	10	14.7	(1794) Glentilt	Duke of Atholl.
-39	7¼	...	34	39½	6+6	21.9	Guisachan	Lord Tweedmouth.
-37½	...	20⅜	26½	...	7+7	...	?	Sir Humphrey de Trafford, Bart.
37⅜	5⅝	14⅜	26⅝	...	6+7	...	?	H. R. H. the Duke of Saxe- Coburg and Gotha.
37¼	5	14⅜	24⅜	...	6+5	...	?	Do.
<sup>1</sup> -36½	...	...	35	12	...	...	Glenmoriston	Col. W. Gordon-Cumming.
36½	5	34	39½	41	5+6	...	Glenstrath- farrar	Viscount Powerscourt (shot by the late Roualeyn Gordon-Cumming).
36½	6½	31½	32½	...	6+6	...	?	Sir Humphrey de Trafford, Bart.
36¼	7	22⅜	28	...	7+7	...	?	Do.
-36	...	...	36	42	13	...	Monymusk	The late Capt. Johnstone
36	5½	16¼	28	36	7+7	...	(1795) ?	Grant. Duke of Portland.

<sup>1</sup> Recorded by J. G. Millais.



SCOTCH RED DEER—*continued.*

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Outside spread.	Points.	Weight.  st. lbs.	Locality.	Owner.
36	4 $\frac{1}{2}$	21 $\frac{1}{2}$	27	...	6+6	...	Caenlochan .	Henry Tate.
35 $\frac{1}{2}$	4 $\frac{1}{4}$	27 $\frac{1}{2}$	34	36 $\frac{3}{8}$	4+3	...	Do.	Do.
35 $\frac{1}{2}$	5 $\frac{1}{2}$	...	25 $\frac{1}{2}$	...	6+6	17 6	Sutherland .	Abel Chapman.
35 $\frac{1}{2}$	6	...	...	29	12	19	Auchnashe- lach	The late Lord Alexander Paget.
35 $\frac{1}{2}$	4 $\frac{1}{2}$	17 $\frac{1}{2}$	30	...	5+6	17 6	Glenisla, For- farshire	Viscount Powerscourt.
-35 $\frac{1}{2}$	7	...	26 $\frac{1}{2}$	...	20	...	Glenquoich .	Lord Burton. (See illus- tration.)
35 $\frac{1}{2}$	4 $\frac{3}{8}$	27 $\frac{1}{2}$	34	36 $\frac{3}{8}$	4+3	...	Caenlochan .	Henry Tate.
-35 $\frac{1}{2}$	4 $\frac{7}{8}$	31 $\frac{7}{8}$	30	...	6+6	...	Deanich, Ross- shire	G. Percy V. Aylmer.
35	4 $\frac{3}{4}$	22	28	...	7+6	...	Talladh-a-Bhe- ithe, Rannoch	E. Weller-Poley.
-35	...	...	...	34	10	16 1	N. Morar .	Capt. T. W. Gill.
-35	...	...	29	41 $\frac{1}{2}$	7+6	...	?	Sir Arthur Grant, Bart.
<sup>1</sup> -35	5 $\frac{3}{4}$	26	33 $\frac{1}{2}$	37 $\frac{1}{2}$	12	...	Guisachan .	Lord Tweedmouth.
<sup>2</sup> -35	4 $\frac{1}{2}$	...	...	27 $\frac{1}{2}$	8	...	Cairn Thomais Gaick	John Hargreave.
-34 $\frac{3}{4}$	...	...	...	31 $\frac{1}{2}$	3+2	16 12	Cluanie .	Hon. T. A. Brassey.
34 $\frac{1}{2}$	5 $\frac{1}{2}$	37 $\frac{1}{2}$	34 $\frac{1}{2}$	...	12	...	Braemore .	Sir John Fowler, Bart.
34 $\frac{1}{2}$	4 $\frac{1}{2}$	18 $\frac{1}{2}$	27	...	6+5	...	N. Morar .	J. R. Hutchison.
<sup>2</sup> -34 $\frac{1}{2}$	5	...	...	34 $\frac{1}{2}$	12	16 7 (clean)	Glentilt .	Duke of Atholl.
34 $\frac{1}{2}$	6	17 $\frac{3}{4}$	25	31 $\frac{1}{2}$	5+4	15 12	Caenlochan .	Mrs. Henry Tate.
34 $\frac{1}{2}$	4 $\frac{1}{8}$	16 $\frac{1}{2}$	24 $\frac{3}{8}$	...	5+5	...	Auchnasheen	F. Devas.
-34	5 $\frac{1}{2}$	...	...	30	Switch	...	Letterewe .	Hon. T. A. Brassey.
34	4 $\frac{1}{8}$	17 $\frac{1}{2}$	26 $\frac{3}{4}$	29	5+4	...	Caenlochan .	W. A. L. Fletcher.
34	...	...	30	...	11	17 2	N. Morar	Capt. T. W. Gill.
34	4	28 $\frac{1}{2}$	30 $\frac{3}{4}$	...	5+4	...	Glenmuick .	J. Ponsonby.
34	4 $\frac{1}{2}$	12	23 $\frac{1}{2}$	...	5+4	...	?	C. A. Grenfell.
34	4	16 $\frac{3}{8}$	...	...	5+4	...	Blair-Atholl	Captain A. W. E. Count Gleichen.
-34	4 $\frac{3}{8}$	19	28	...	6+5	...	Rothiemurchus, Inverness	A. Basil Brooke.
<sup>2</sup> -34	...	...	...	...	11	...	Braemar	Col. Gordon-Cumming.
<sup>2</sup> -34	4 $\frac{3}{4}$	...	...	36 $\frac{1}{2}$	12	...	Glenbruar, Perthshire	Sir W. Ogilvie Dalgleish.

<sup>1</sup> Above trez.<sup>2</sup> Recorded by J. G. Millais.

C

SCOTCH RED DEER—*continued.*

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Outside spread.	Points.	Weight.  st. lbs.	Locality.	Owner.
<sup>2</sup> -34	4 $\frac{7}{8}$	...	...	30	10	...	Morar .	W. Stirling.
<sup>2</sup> 34	7	...	...	26	14	...	Glenartney .	Earl of Ancaster.
33 $\frac{3}{4}$	5 $\frac{1}{2}$	19 $\frac{1}{2}$	25 $\frac{1}{2}$	...	5+5	...	?	H. S. O'Brien.
-33 $\frac{1}{2}$	5	...	34 $\frac{1}{2}$	...	5+5	20	Dalness .	J. G. Millais.
33 $\frac{1}{2}$	4	16 $\frac{1}{2}$	25	29	5+5	...	Caenlochan .	H. C. Pilkington.
-30 $\frac{1}{2}$	4 $\frac{1}{2}$	...	27	...	12	...	Kintail .	Sir Edmund G. Loder, Bart.
33	4 $\frac{1}{8}$	8 $\frac{1}{8}$	20 $\frac{3}{4}$	24 $\frac{3}{4}$	4+4	...	Ben Alder .	Julius Wernher.
33	4 $\frac{1}{4}$	24 $\frac{3}{4}$	28 $\frac{1}{2}$	33 $\frac{1}{2}$	5+4	15 12	Do.	F. C. Selous.
33	4 $\frac{3}{4}$	21 $\frac{1}{2}$	28 $\frac{3}{4}$	33	4+4	...	Kintail .	R. P. Page.
-32 $\frac{3}{4}$	5	25 $\frac{3}{4}$	29 $\frac{1}{4}$	...	6+6	...	Ardverikie .	W. H. Walker.
32 $\frac{3}{4}$	4 $\frac{1}{2}$	...	28	...	5+4	...	?	Sir Charles Tennant, Bart.
32 $\frac{1}{2}$	4 $\frac{1}{4}$	16 $\frac{1}{2}$	26 $\frac{1}{4}$	...	5+5	...	Auchnashe- lach	G. Webster.
32 $\frac{1}{4}$	4 $\frac{3}{4}$	20 $\frac{3}{4}$	28	...	5+5	...	Morar .	J. R. Hutchison.
32	4	25 $\frac{3}{4}$	25	28	5+5	...	Invercauld .	Otto Beit.
32	5	...	22 $\frac{1}{2}$	...	5+4	19	Rannoch .	Sir W. G. Pearce, Bart.
<sup>1</sup> 32	4 $\frac{1}{2}$	31	29 $\frac{1}{2}$	40	7+9	...	Rhidorrach .	Viscount Powerscourt.
32	4	24 $\frac{1}{2}$	29	...	4+4	...	Braulen .	J. K. Fowler.
-32	...	...	...	34	10	...	Kintail .	Sir Edmund G. Loder, Bart.
31 $\frac{3}{4}$	3 $\frac{3}{4}$	...	26 $\frac{1}{2}$	...	4+4	...	Rhidorrach	Captain F. Cookson.
31 $\frac{3}{4}$	4 $\frac{3}{4}$	18	24 $\frac{3}{4}$	...	6+5	14	Inchgrundle .	Countess of Dudley.
31 $\frac{1}{2}$	4 $\frac{1}{2}$	16	21	23 $\frac{1}{2}$	6+5	...	Shank .	R. K. Micklethwait.
31 $\frac{1}{2}$	4 $\frac{3}{4}$	22	28 $\frac{1}{4}$	31 $\frac{1}{4}$	3+3	...	Caenlochan .	E. L. Fletcher.
31 $\frac{1}{2}$	4	12 $\frac{1}{2}$	21 $\frac{1}{2}$	25 $\frac{1}{4}$	6+4	...	Do.	W. W. Gossage.
31 $\frac{1}{2}$	5	...	26 $\frac{1}{2}$	...	12	17	Auchnasheen	J. F. Laycock.
31 $\frac{1}{2}$	4	22	26 $\frac{1}{4}$	32 $\frac{1}{2}$	7+6	...	Kintail .	R. P. Page.
31 $\frac{1}{2}$	4	24 $\frac{1}{2}$	29	...	5+4	...	Braulen .	J. Talbot Clifton.
31 $\frac{1}{2}$	4 $\frac{1}{4}$	21	25 $\frac{1}{2}$	...	4+4	15 3	Invermark .	W. S. M. Burns.
31 $\frac{1}{2}$	4 $\frac{3}{8}$	20 $\frac{1}{4}$	25 $\frac{3}{4}$	...	3+3	...	Dalnacardoch	Hon. T. A. Brassey.

Above trez.

<sup>2</sup> Recorded by J. G. Millais.

SCOTCH RED DEER—*continued*.

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Outside spread.	Points.	Weight.  st. lbs.	Locality.	Owner.
31 $\frac{3}{4}$	4 $\frac{3}{4}$	8 $\frac{3}{4}$	24	...	5+5	...	Glenmuick	C. Lawrence.
-31 $\frac{1}{4}$	5 $\frac{1}{2}$	25 $\frac{1}{2}$	29	...	Switch	...	Achdalen	M. K. North.
31 $\frac{1}{4}$	4 $\frac{1}{2}$	16	24 $\frac{1}{2}$	...	7+5	...	Rhidorrach	Capt. F. Cookson.
31 $\frac{1}{4}$	4 $\frac{1}{2}$	24 $\frac{7}{8}$	32	...	5+3	...	Ross-shire	E. Lort-Phillips.
31 $\frac{1}{4}$	4	...	40 $\frac{1}{4}$	...	6+6	...	?	Dr. Fancourt Barnes.
31 $\frac{1}{4}$	4	15	25	...	5+4	...	Auchnashel- lach	W. Maxwell Lyte.
31	4 $\frac{3}{4}$	24	25	...	5+5	...	Morar	J. R. Hutchison.
-31	5 $\frac{1}{2}$	32 $\frac{1}{2}$	...	38	5+4	...	Inverlochty	Mrs. J. E. Platt.
-31	5 $\frac{1}{2}$	20 $\frac{1}{4}$	24	...	10	...	?	C. V. A. Peel.
31	4 $\frac{3}{4}$	19 $\frac{1}{4}$	23 $\frac{1}{4}$	33 $\frac{1}{4}$	8+6	...	S. Harris	Earl of Dunmore.
31	4 $\frac{5}{8}$	24 $\frac{1}{2}$	28 $\frac{1}{4}$	...	5+4	...	Caenlochan	F. W. Robinson.
-31	4 $\frac{1}{2}$	20	15	...	8+7	...	?	J. Bennett-Stanford.
31	4 $\frac{1}{2}$	16 $\frac{1}{2}$	23 $\frac{1}{2}$	29	6+5	...	Inversanda	J. Hamilton Leigh.
30 $\frac{7}{8}$	4 $\frac{3}{8}$	25 $\frac{7}{8}$	28 $\frac{3}{8}$	...	5+6	...	Rhidorrach	W. R. Cookson.
30 $\frac{3}{4}$	5	19 $\frac{1}{2}$	24	...	6+5	...	Arisaig	J. R. Hutchison.
30 $\frac{3}{4}$	4 $\frac{1}{2}$	13	23 $\frac{1}{2}$	...	5+4	14	Invergarry	Guy Stephenson.
30 $\frac{1}{2}$	3 $\frac{5}{8}$	24 $\frac{3}{8}$	31	33 $\frac{1}{4}$	3+3	...	Inversanda	J. Hamilton Leigh.
30 $\frac{1}{2}$	4 $\frac{1}{8}$	13 $\frac{1}{2}$	23 $\frac{1}{2}$	...	6+6	...	Letterewe	Gordon Wood.
30 $\frac{1}{2}$	4 $\frac{1}{4}$	17 $\frac{1}{4}$	24 $\frac{3}{4}$	...	7+6	...	Rhidorrach	J. Talbot Clifton.
30 $\frac{1}{2}$	4 $\frac{1}{2}$	18 $\frac{1}{2}$	24	...	4+3	14	Glen Tana	Major Hon. A. H. Henniker.
30 $\frac{1}{2}$	4	25 $\frac{1}{2}$	28 $\frac{3}{4}$	...	4+3	...	Auchnashel- lach	Capt. H. Reynolds, R.N.
30 $\frac{1}{2}$	4 $\frac{1}{4}$	22 $\frac{1}{4}$	29	31	3+3	...	?	L. Breitmeyer.
30 $\frac{1}{4}$	4 $\frac{3}{8}$	20	25 $\frac{1}{2}$	...	6+5	...	?	H.R.H. le Duc d'Orléans.
-30	4 $\frac{3}{8}$	...	25 $\frac{1}{2}$	...	5+5	15	Blackmount	J. G. Millais.
-29 $\frac{3}{4}$	4	32 $\frac{1}{2}$	...	...	5+5	16	Do.	Do.
29 $\frac{1}{2}$	4 $\frac{1}{2}$	24 $\frac{3}{8}$	29	...	4+5	...	?	Marquis Camden.
-29 $\frac{1}{4}$	6 $\frac{1}{2}$	...	27 $\frac{7}{8}$	...	...	16 11	Blackmount	Marquis of Breadalbane.
-29	4	...	29	31	6+6	...	Inverness	H. Seton-Karr.

The widths of the six widest heads in the Duke of Fife's collection are as follows:—

40      38      37      35      35      35

The six longest antlers of this celebrated collection are respectively—

37      36       $35\frac{1}{2}$        $35\frac{1}{2}$       35      35

The antlers of one of the red deer in Mr. Lucas's Park at Warnham Court, Sussex, in 1889, had 34 points; 1890, 34 points; 1891, 37 points; 1891, 47 points and weighed 17 lbs.; 1893, 45 points,  $16\frac{1}{2}$  lbs.

For an interesting account of many fine specimens the reader is referred to *British Deer and their Horns*, by J. G. Millais.

#### b.—IRISH RED DEER.

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Weight.  st. lbs.	Locality.	Owner.
<sup>1</sup> 42 $\frac{1}{2}$	...	...	...	12	22 7	Colebrooke	Sir Douglas Brooke, Bart.
41	6	17 $\frac{1}{2}$	23	10+9	23 3	Do.	Do.
40	5 $\frac{1}{2}$	28	29 $\frac{1}{2}$	8+8	25 5	Do.	Do.
39 $\frac{5}{8}$	5 $\frac{1}{4}$	14 $\frac{1}{2}$	26 $\frac{3}{8}$	7+7	26 11	Do.	Do.
38	5 $\frac{3}{8}$	20	30 $\frac{5}{8}$	10+8	25 0 (clean)	Do.	Do.
35	4 $\frac{3}{4}$	...	30	9	...	Ireland	Hon. A. Charteris.
35	5 $\frac{1}{8}$	19 $\frac{5}{8}$	26 $\frac{3}{4}$	6+5	20 2	Powerscourt Park	Viscount Powerscourt.
35	5 $\frac{1}{4}$	21 $\frac{1}{4}$	29	5+5	{ 24 st. as he fell 18 st. clean	Do.	Do.
34 $\frac{1}{2}$	5	12 $\frac{1}{2}$	22 $\frac{1}{2}$	5+5		Do.	Do.
34	4 $\frac{1}{2}$	25 $\frac{1}{2}$	28 $\frac{1}{2}$	6+6	{ 26 st. as he fell 20 st. clean	Do.	Do.
34	5	20 $\frac{1}{2}$	26	6+6		Do.	Do.
34	4 $\frac{3}{4}$	...	31 $\frac{1}{2}$	6+5	26 8	Muckross	Ralph Sneyd.
34	4 $\frac{1}{8}$	13 $\frac{1}{8}$	25	5+5	...	Colebrooke	Capt. J. M. Rogers.
33 $\frac{1}{4}$	5	...	26	5+5	22 0	Muckross	Hon. Mrs. Bourke.
31	4 $\frac{3}{4}$	11	20 $\frac{3}{4}$	7+7	...	Do.	Ralph Sneyd.
31	4 $\frac{3}{4}$	18 $\frac{1}{2}$	22	5+7	...	?	Dublin Museum.
30 $\frac{1}{4}$	4	...	26 $\frac{1}{2}$	5+5	19 10	Muckross	Geoffrey Carr-Glyn.
29 $\frac{3}{4}$	4 $\frac{3}{4}$	21 $\frac{1}{4}$	24 $\frac{1}{2}$	6+6	...	Colebrooke	Montrose Cloete.

<sup>1</sup> See Millais's *British Deer and their Horns*.



Antlers of Exmoor Stag.

## c.—WEST OF ENGLAND RED DEER.

Length on outside curve.	Circumference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
<sup>1</sup> 41	5 $\frac{1}{4}$	21 $\frac{1}{2}$	32 $\frac{1}{2}$	5+5	Exmoor . . .	Sir John Heathcoat-Amory, Bart.; killed in 1897 with the Devon and Somerset Stag-hounds.
39	5 $\frac{3}{4}$	15 $\frac{3}{4}$	28 $\frac{1}{2}$	6+6	Do. . . . .	R. A. Sanders.
38 $\frac{1}{2}$	5 $\frac{1}{8}$	17 $\frac{1}{2}$	31 $\frac{1}{2}$	6+6	Quantock Hill.	Viscount Ebrington; killed in 1885.
37 $\frac{1}{2}$	5	22 $\frac{1}{2}$	30 $\frac{1}{2}$	7+7	Exmoor . . .	C. Nelder; killed in 1803.
36 $\frac{3}{4}$	6	21 $\frac{1}{2}$	28 $\frac{1}{2}$	6+7	Do. . . . .	Sir A. Acland-Hood, Bart.; killed in 1893.
35 $\frac{1}{2}$	5	20 $\frac{7}{8}$	27 $\frac{1}{2}$	6+6	Do. . . . .	Earl Fortescue; killed in 1812.
35	5	15 $\frac{3}{4}$	27	6+5	Do. . . . .	Com. G. F. Inglefield, R.N.
35	4 $\frac{2}{3}$	25 $\frac{1}{2}$	32 $\frac{3}{4}$	5+6	Do. . . . .	Sir C. T. D. Acland, Bart.; killed in 1893.
<sup>2</sup> 34 $\frac{5}{8}$	5 $\frac{5}{8}$	23 $\frac{1}{2}$	31 $\frac{1}{4}$	6+6	Do. . . . .	Viscount Ebrington; killed in 1881.
<sup>2</sup> -33	6 $\frac{1}{2}$	...	29	6+6	Do. . . . .	The late Sir T. D. Acland, Bart.; killed in 1788.
<sup>3</sup> -33	5 $\frac{1}{4}$	...	29 $\frac{1}{2}$	9+7	Do. . . . .	" " 1792.
-33	5 $\frac{5}{8}$	39	32	7+7	Do. . . . .	" " 1877.
33	5 $\frac{1}{2}$	13	25	8+7	Do. . . . .	Viscount Ebrington; killed in 1881.
32	5 $\frac{1}{2}$	30 $\frac{3}{4}$	30 $\frac{3}{4}$	7+4	Do. . . . .	Earl Fortescue; killed in 1814.
32	4 $\frac{1}{2}$	15 $\frac{1}{2}$	26	6+6	Do. . . . .	Col. J. F. Hornby.
30 $\frac{1}{2}$	5	24 $\frac{1}{2}$	29 $\frac{1}{2}$	6+6	Do. . . . .	Earl Fortescue.

<sup>1</sup> Weight 333 lbs., clean. Length of brow-tine, 17 inches.<sup>2</sup> Weight, 17 stone 2 lbs.<sup>3</sup> See *Red Deer* in Fur and Feather Series.



Head of Stoke Park Red Deer.

*d.*—ENGLISH PARK RED DEER.

Length on out-side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
42½	6½	...	...	40	12	...	Melbury, Dorset	Earl of Ilchester.
41½	5	<sup>1</sup> 22½	32	...	7+6	...	Langley Park	J. G. Millais.
-40	...	...	...	41	7+7	...	?	Sir Greville Smyth, Bart.
37½	7½	29½	27½	36½	10+9	...	Welbeck	Duke of Portland.
-37	7½	...	...	37	23	31 st. (clean)	Warnham	T. Lucas.
36	6½	24	30	...	6+6	...	Vaynol, North Wales	G. W. D. Assheton- Smith.
36	<sup>1</sup> 5½	19	28½	...	9+11	...	Woburn	Duke of Bedford.
35	6	14½	24	...	6+6	...	Vaynol, North Wales	G. W. D. Assheton- Smith.
34½	7	33	26¾	...	20+20	...	Warnham	W. H. Lucas.
34½	<sup>1</sup> 5½	18½	26	...	8+8	...	Woburn	Duke of Bedford.
34	4½	...	23	...	6+6	...	Stowe	H. R. H. la Comtesse de Paris.
34	5½	21¾	28½	...	7+7	...	Dorset	Earl of Ilchester.
34	6½	...	...	48 (about)	45	...	Warnham	C. T. Lucas.
33½	4¾	...	33	...	6+6	...	Stowe	H. R. H. le Duc d'Orléans.
33½	5½	21½	28½	...	9+9	...	Woburn	Duke of Bedford.
33	7 above trez	...	...	45½	44	...	Warnham	C. T. Lucas.

Some of the above measurements are recorded by J. G. Millais in *British Deer and their Horns*.

<sup>1</sup> White Stag.



Skull and Antlers of Old English Red Deer.  
(Found in cutting the Manchester Ship Canal.)

*c.*—ANCIENT BRITISH RED DEER.

Length on outside curve.	Circumference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points	Where dug up.	Owner.
47½	8	35	...	...	5+8	Manchester Ship Canal excavations	Sir R. M. Brooke, Bart.
40	7½	22½	28½	43½	12+9	Combermere	Duke of Westminster.
38½	5	18	30	39½	8+6	Ireland	Viscount Powerscourt.
36½	5	24	25	35½	8+8	Do.	Do.
36	5½	23	27	37½	10+9	Kerry, Ireland	Do.
<sup>1</sup> 36	5½	...	...	42½	23	South Ireland	Sir Douglas Brooke, Bart.
35½	5½	26½	32½	42½	13+11	Do.	Sir Victor Brooke's Collection.
35½	5½	31½	27½	...	12+10	Ireland	Viscount Powerscourt.
35	7	...	21	24	9+11	England	C. G. Burrow.
34½	5	22	30	...	10+10	Ireland	Viscount Powerscourt.
33	4½	27	28½	35½	9+8	Do.	Do.

<sup>1</sup> Recorded by J. G. Millais.

*f.*—NORWEGIAN RED DEER.

"Hitteren may still be considered the headquarters of the red deer in Norway. These animals (unlike the elk, which would appear to be diminishing) are increasing in numbers, and are now found in districts where they were previously unknown. Of 138 killed in the whole country last year fifteen were shot in South Bergenhus, twelve in Romsdal, and thirty-one in North Bergenhus Amt" (SNOWFLY, *Field*, 11th December 1897).

Length on outside curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
-34	...	...	...	...	7	...	Norway . .	J. H. Thomas.
31 $\frac{3}{4}$	4 $\frac{3}{4}$	...	25 $\frac{1}{2}$	...	6+5	...	Do. . .	A. Brassey.
31 $\frac{1}{2}$	4 $\frac{1}{2}$	...	24 $\frac{1}{2}$	..	5+5	...	Do. .	H. Seton-Karr.
31 $\frac{1}{2}$	4 $\frac{3}{4}$	...	28	...	4+3	...	Do.	E. M. Denny.
31	4 $\frac{1}{4}$	23	25	29 $\frac{1}{2}$	6+6	..	Do. .	J. H. Thomas.
30	5	...	29	...	12	20 st.	Do. .	E. M. Denny.
-30	4 $\frac{1}{4}$	...	28	33	5+4	...	Do. . .	H. Seton-Karr.
30	4 $\frac{1}{4}$	29 $\frac{1}{4}$	30 $\frac{3}{4}$	...	5+4	...	Do. .	Do.
29 $\frac{1}{2}$	4 $\frac{7}{8}$	18 $\frac{1}{2}$	23 $\frac{1}{4}$	...	5+5	...	Do. .	J. H. Thomas.
29 $\frac{1}{4}$	4 $\frac{5}{8}$	26	30 $\frac{1}{4}$	...	6+5	...	Do.	G. L. Denmar.
28 $\frac{1}{4}$	4	27	25	...	4+4	...	Do. .	H. F. Kemp.
-28	5 $\frac{1}{8}$	Single Antler			5	...	Do.	H. Seton-Karr.
27 $\frac{1}{2}$	5	26	26	...	5+6	...	Do. .	J. H. Thomas.
26 $\frac{1}{4}$	4 $\frac{1}{4}$	19 $\frac{3}{4}$	21 $\frac{3}{4}$	...	4+4	...	Do.	Do.
26	4 $\frac{1}{2}$	...	30	32 $\frac{1}{2}$	6+5	20 st. 9 lbs.	Do. . .	H. Seton-Karr.
24 $\frac{3}{4}$	3 $\frac{1}{2}$	21	20 $\frac{1}{4}$	...	2+2	...	Do. .	A. Henderson.

*g.*—SPANISH RED DEER.

<sup>1</sup> -40	...	...	36 $\frac{1}{2}$	...	17	Sierra Morena, Spain	Abel Chapman.
-37 $\frac{1}{2}$	...	...	34 $\frac{1}{2}$	...	15	Sierra Morena .	Do.
36	5 $\frac{1}{2}$	37	...	...	15	South Spain . .	The late Lord Lilford.
-32 $\frac{1}{2}$	...	...	...	...	13	Plains of Andalucia .	W. J. Buck.
-29	5 $\frac{1}{4}$	...	25	...	12	Andalucia . .	Abel Chapman.
-28 $\frac{1}{2}$	5 $\frac{1}{4}$	...	26 $\frac{1}{4}$	...	13	Do. . .	Do.

<sup>1</sup> A mountain head.



# h.—OTHER CONTINENTAL RED DEER.

Some of the specimens in this list from Eastern Europe probably belong to the Maral, or Caspian, race.

Number of Points.	Weight in lbs. Avordupois.	Length along Curve.	Circumference of Burr.	Circumference above Burr.	Circumference above Middle Point.	Circumference below Crown.	Circumference between Bez and Trez.	Tip to Tip.	Widest inside.	Spread.	Weight of Stag.	Locality.	Owner.
- 18	over 20	53 $\frac{9}{16}$	11 $\frac{1}{2}$	10	...	15 $\frac{1}{2}$	10	...	...	...	206 kilos or 32 stone 5 lb.	Galicia	H. R. H. D. Miguel, Duke Braganza.
- 16	23·36	53·54	10·04	8·47	7·28	8·20	8·75	11 $\frac{1}{2}$	32	41 $\frac{1}{2}$	250 kilos	Zemplen Comitatus	Count Gèza Andrassy.
- 18	20·5	52	...	...	...	...	7·25	...	32·75	45	36 stone, cut up	Galicia	E. N. Buxton.
- 14	23	51	11	8 $\frac{1}{2}$	7	9	7·20	27	38	47	236 kilos	Zemplen Comitatus	Count Gèza Andrassy.
11	...	51	...	...	...	...	5·5	38·5	42·5	45·25	...	Hungary	Viscount Powerscourt (a).
1 14	...	51	...	...	...	...	7·25	23·5	39·5	50	...	Do.	Do.
- 14	...	50	...	...	...	...	6	42	40	...	...	La Mandria	J. J. S. Whitaker.
- 21	21·3	50·4	...	6·08	...	...	...	30	...	55·9	...	Pilis Mountains	Duke of Ratibor.
- 14	31 and an oz. or two	49 $\frac{3}{8}$	...	...	...	...	...	...	39 $\frac{3}{8}$	...	...	Radauc	Prince Lulu Rohan.
- 18	...	49 $\frac{1}{8}$	10 $\frac{1}{4}$	9 $\frac{1}{16}$	61 $\frac{5}{8}$	9 $\frac{1}{2}$	...	...	...	48 $\frac{3}{4}$	354 lbs.	Hungary	Count Joseph Hoyos.
- 12	21	49	10 $\frac{2}{16}$	...	...	...	...	...	...	...	...	Do.	Prince Philip of Saxe-Coburg and Gotha.
- 16	...	49	...	...	...	...	...	...	...	43	...	Carpathians	Prince Henry of Liechtenstein.
- 20	25·3	48·8	...	...	...	...	...	...	...	...	...	?	Prince Hugo Windischgrätz
14	...	48 $\frac{1}{2}$	...	...	...	6 $\frac{3}{4}$	6 $\frac{3}{4}$	34	30	37 $\frac{1}{2}$	...	Carpathians	Lieut.-Col. L. Marshall.
- 19	...	48	...	8 $\frac{3}{8}$	...	...	...	...	...	...	...	Do.	Prince Henry of Liechtenstein.
- 19	...	48	...	9	...	...	...	...	27	48	...	Gotha	H. R. H. the Duke of Saxe-Coburg and Gotha.
20	...	48	...	...	...	...	6 $\frac{1}{2}$	33 $\frac{1}{2}$	41 $\frac{1}{2}$	51 $\frac{3}{4}$	...	Germany	Viscount Powerscourt (c).
1 18	...	48	...	...	...	...	7	38	43	58	...	Hungary	Do.

1 Dug up.

# OTHER CONTINENTAL RED DEER—continued.

Number of Points.	Weight in lbs. Avoirdupois.	Length along Curve.	Circumference of Burr.	Circumference above Burr.	Circumference above Middle Point.	Circumference below Crown.	Circumference between Bez and 1rez.	Tip to Tip.	Widest inside.	Spread.	Weight of Stag.	Locality.	Owner.
- 14	23	48	10	9½	7½	12	7½	13	25	32	37 stone 1 lb.	Galicia	H.R.H. D. Miguel, Duke of Braganza.
- 16	20·57	47·84	11·21	9·25	...	7·87	...	...	...	...	...	Hungary	Prince Philip of Saxe-Coburg and Gotha.
15	...	47½	...	...	...	...	5¾	30	40	50	...	Do.	Viscount Powerscourt.
- 16	...	47½	11½	8½	7½	8½	...	35¾	25½	29½	242 kilos	Do.	Count Ferdinand Trauttmansdorff.
13	...	47	...	...	...	...	6½	12¾	31½	...	...	Galicia	A. von André.
8	...	47	...	...	...	...	6½	23	38½	...	...	Germany	Viscount Powerscourt (a).
- 20	20·79	46·46	9·84	7·87	7·09	7·87	...	...	...	...	...	Hungary	Count Fery Nádasdy.
- 16	20·68	46·46	11·02	9·45	8·07½	6·89	...	...	...	...	...	Do.	Prince Victor Ratibor.
- 22	...	46½	9½	9½	6¾	8½	...	52¾	39¾	42¾	479 lbs.	Do.	Count Max Hoyos.
- 16	19·91	46·06	11·81	9·25	6·89½	7·28	...	...	...	...	...	Do.	Count Mitrowsky.
- 20	22·55	46·06	10·63	9·05	6·69	8·46	...	...	...	...	...	Do.	Count Bela Szechenyi.
- 14	...	46	...	...	...	...	...	...	36	...	...	Carpathians	Prince Henry of Liechtenstein.
16	...	46	...	...	...	...	6¾	38	42½	53	...	Hungary	Viscount Powerscourt (e).
13	...	46	9	...	...	...	7¾	19¾	31	...	...	N. Germany	Do. (d).
- 18	...	46	...	9	...	...	...	...	36	60	...	Gotha	H.R.H. the Duke of Saxe-Coburg and Gotha.
15	...	46	...	...	...	...	5¾	32	39½	50½	...	Hungary	Viscount Powerscourt.
- 13	...	46	...	...	...	...	7½	...	29½	37	...	Carpathians	Prince Alenbourg.
- 18	...	46	10	...	...	...	...	...	35	54½	...	Bukowina, Hungary	Count Erbach.
- 10	...	45¾	...	...	...	...	6½	26¾	38½	...	...	Hungary	Major-Gen. Sir Arthur Ellis, K.C.V.O.
...	...	45½	...	...	...	...	...	...	...	44	...	Do.	Sir Edmund G. Loder, Bart.
17	...	45½	...	...	...	...	6½	21½	35¾	44½	...	Do.	Viscount Powerscourt (f).

-20	17-05	45-27	10-04	8-07	7-28†	7-48	...	...	...	Do.	Count George Erdödy.
-12	20-46	45-27	9-84	6-49	6-69	7-48	...	...	...	Do.	Count Belà Szechenyi.
-15	...	45½	9½	...	...	...	...	23½	34½	Roumania.	Prince Demeter Ghika.
-22	...	45½	12	9½	7	14½	8½	29½	34½	Hungary.	Prince Henry of Liechtenstein.
19	...	45	...	...	...	...	6½	23	37	Germany.	Viscount Powerscourt (b).
15	...	45	...	...	...	...	5½	23½	36½	Do.	Do.
-11	...	45	...	9	...	...	...	38	33	Gotha	H.R.H. the Duke of Saxe Coburg and Gotha.
-11	...	45	...	...	...	...	6	...	39	Galicia.	E. N. Buxton.
20	...	44½	...	...	...	...	7½	14½	28½	Carpathians	Viscount Powerscourt (g).
17	...	44½	...	...	...	...	7½	17	32	Hungary.	Major-Gen. Sir Arthur Ellis K.C.V.O.
-20	15-73	44-49	9-05	7-87	9-05	12-21	...	...	...	Do.	Count Tassilo Festetics.
-14	16-17	44-49	10-63	9-45	6-49†	8-07	...	...	...	Do.	Count Belà Szechenyi.
-8	17-38	44-09	11-41	9-84	7-68†	7-68	...	...	...	Do.	Count Michael Esterhazy.
-14	18-37	44-09	11-41	10-24	7-28	6-89	...	...	...	Do.	Jeno Kund.
17	...	44	...	...	...	...	7½	31	39½	Germany.	Viscount Powerscourt.
16	...	44	...	...	...	...	6½	23½	33	Do.	Do.
8	...	44	...	...	...	...	5½	24½	39	Hungary.	A. von André.
-18	19-14	43-7	10-04	8-46	7-09†	9-64	...	...	...	Do.	Count Rudolph Erdödy.
-14	20-24	43-7	10-43	8-27	7-09†	7-28	...	...	...	Do.	F. Pausinger.
-20	18	43-6	10-02	8-03	...	12-23	7-64	36-06	25-12	Do.	Count Tassilo Festetics.
12	...	43½	11	...	6½	5½	6½	15	29½	Do.	A. von André.
-20	17-6	43-31	10-04	8-07	7-28	8-27	...	...	...	Do.	Count Tassilo Festetics.
-14	15-95	43-31	10-43	8-66	7-09	7-28	...	...	...	Do.	Prince Philip of Saxe-Coburg and Gotha.
21	...	43	...	...	...	...	6½	37½	38½	Germany.	Viscount Powerscourt (j).
21	...	43	...	...	...	...	6½	28½	33	Do.	Do.

# OTHER CONTINENTAL RED DEER—continued.

Number of Points.	Weight in lbs. Antelope.	Length along Curve.	Circumference of Burr.	Circumference above Burr.	Circumference above Middle Point.	Circumference below Crown.	Circumference between Bez and Trez.	Tip to Tip.	Widest inside.	Spread.	Weight of Stag.	Locality.	Owner.
- 16	18.92	42.91	10.04	8.66	7.48	8.27	...	...	...	...	...	Germany	Prince Philip of Saxe-Coburg and Gotha.
- 20	...	42.1 $\frac{1}{2}$	9 $\frac{1}{2}$	8 $\frac{1}{2}$	7.1 $\frac{1}{2}$	9 $\frac{3}{8}$	...	47.1 $\frac{5}{8}$	29 $\frac{1}{2}$	36 $\frac{5}{8}$	257 kilos	Do.	Count Henry Fünfkirchen.
- 16	16.06	42.91	9.84	8.27	6.69	7.09	...	...	...	...	...	Do.	G. Jankovich.
14	20.06	42.91	9.64	8.66	7.68	7.28	...	...	...	...	...	Do.	Count B. Keglevich.
- 20	...	42.3	9.1	8.5	...	...	...	...	...	...	...	Do.	Count Szechenyi.
- 18	19.1	42.7	...	8.5	...	...	...	...	...	...	...	Szilvás	Count Bombelles.
16	17.6	42.13	11.61	10.24	7.09 $\frac{1}{2}$	7.68	...	...	...	...	265 kilos	Do.	Count Fery Nádasdy.
- 14	18.85	42.13	9.64	9.05	7.09	7.87	...	...	...	...	...	Do.	Prince Philip of Saxe-Coburg and Gotha.
- 20	18.8	42.1	...	9.1 $\frac{1}{2}$	...	...	...	...	...	...	...	Munkacs	Count Jose Hoyos.
18	...	42	...	...	...	...	5 $\frac{3}{8}$	26 $\frac{1}{2}$	37 $\frac{3}{8}$	43	...	Austria	Viscount Powerscourt (k).
16	...	42	...	...	...	...	6	21	31 $\frac{1}{2}$	...	...	Germany	Do.
12	...	42	...	...	...	...	...	...	35 $\frac{1}{2}$	40	...	Galicia	E. N. Buxton.
- ...	...	42	...	...	...	...	5 $\frac{1}{2}$	...	30	...	...	Styria	Sir Clement Hill, Bart.
- 15	...	42	10	...	...	...	...	...	...	43	45	Gotha	H.R.H. the Duke of Saxe Coburg and Gotha.
12	...	41 $\frac{7}{8}$	...	...	...	...	5 $\frac{1}{2}$	...	25 $\frac{1}{2}$	...	...	Germany	British Museum.
18	18.26	41.73	10.24	9.25	7.09 $\frac{1}{2}$	8.07	...	...	...	...	...	Hungary	Count Fery Nádasdy.
16	...	41 $\frac{1}{2}$	...	...	...	...	6	28	36	...	...	Do.	Viscount Powerscourt.
14	...	41 $\frac{1}{2}$	...	...	...	...	6 $\frac{1}{2}$	26 $\frac{1}{2}$	34	...	...	Germany	Do.
14	...	41	...	...	...	...	6 $\frac{1}{2}$	26	34	...	...	Hungary	Do.
15	...	41	...	...	...	...	5 $\frac{3}{8}$	27 $\frac{1}{2}$	32 $\frac{1}{2}$	...	...	Germany	Do.
- 14	20	41	...	10 $\frac{1}{2}$	7 $\frac{1}{2}$	9.1 $\frac{1}{2}$	...	...	31 $\frac{1}{2}$	...	...	Hungary	Prince Philip of Saxe-Coburg and Gotha.
- 12	21.01	40.94	12.21	10.63	7.09 $\frac{1}{2}$	8.27	...	...	...	...	230 kilos	Do.	Do.

- 14	20	40 <sup>9</sup> / <sub>16</sub>	...	9 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	...	26	...	Hungary	Prince Philip of Saxe-Coburg and Gotha.
- 13	...	40 <sup>1</sup> / <sub>4</sub>	...	...	...	...	5	20 <sup>3</sup> / <sub>4</sub>	...	Tyrol	H.R.H. the Duke of Saxe-Coburg and Gotha.
- 20	18.50	40.10	...	...	...	...	...	...	...	Agarév	Count Tassilo Festetics.
18	...	40	...	...	...	...	5 <sup>1</sup> / <sub>2</sub>	34	31 <sup>3</sup> / <sub>4</sub>	Hungary	Viscount Powerscourt.
- 12	...	40	10	...	...	36	...	31	36	Tyrol	H.R.H. the Duke of Saxe-Coburg and Gotha.
- 18	...	40	10	...	...	...	...	...	28	Gotha	Do.
15	...	39 <sup>1</sup> / <sub>2</sub>	10	9 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	21 <sup>1</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>4</sub>	Hungary	A. von André.
8	...	38 <sup>3</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>8</sub>	...	5 <sup>1</sup> / <sub>2</sub>	...	27 <sup>3</sup> / <sub>4</sub>	33	Do.	Do.
- 14	26 <sup>1</sup> / <sub>2</sub>	37 <sup>1</sup> / <sub>8</sub>	13	...	...	8 <sup>1</sup> / <sub>16</sub>	...	...	23 <sup>3</sup> / <sub>8</sub>	Do.	Prince August Leóold of Saxe-Coburg and Gotha.
- 14	...	37	...	...	...	...	5 <sup>1</sup> / <sub>4</sub>	21 <sup>1</sup> / <sub>2</sub>	30	Macedonia	H. J. Elwes.
- 20	...	36 <sup>3</sup> / <sub>8</sub>	10 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	...	7 <sup>3</sup> / <sub>8</sub>	...	...	12 <sup>3</sup> / <sub>8</sub>	Hungary	Prince Philip of Saxe-Coburg and Gotha.
10	...	31 <sup>1</sup> / <sub>2</sub>	...	...	...	...	4 <sup>1</sup> / <sub>4</sub>	12	18 <sup>1</sup> / <sub>2</sub>	Tenuta la Mandria	II. R.H. le Duc d'Orléans.
- 44	19 <sup>1</sup> / <sub>4</sub>	30	...	...	...	...	...	...	44 <sup>1</sup> / <sub>2</sub>	Rominten	H.I.M. the German Emperor.

## NOTES AND EXPLANATIONS.

- Many specimens marked thus are uneven pointers.
- a.* Length of brow tine, 22<sup>3</sup>/<sub>4</sub> in. Bez, 23 in.
- b.* " " 21<sup>1</sup>/<sub>4</sub> in. On papier-mache head. A very large 8 pointer.
- c.* Palmated tops 6 in. across. Length of brow tine, 17<sup>1</sup>/<sub>2</sub> in.
- d.* Length of brow tine, 21 in. Left trez tine, 21 in.
- e.* Shot by a peasant in a drive in Buckowina, in 1896.
- f.* Bought in Munich.
- g.* Length of left trez tine, 25 in. Bought in Vienna in 1863.
- h.* Right antler is forked at trez tine, and carries three points
- 
- on this third tine, forming almost a cup. Mounted on a papier-mache head.
- i.* Tops palmated 6 in. across.
- j.* Right trez tine forked, tops palmated.
- k.* Killed in 1809. Bought at Linz, Austria, in 1898.
- l.* A remarkable specimen of a palmated head.
- o.* Trez tine on right antler forked.
- p.* From the Hildesheim Collection, near Hanover.
- † The circumference of these antlers is taken above middle tine.

Viscount Powerscourt informs me that the 18 stag heads in the entrance hall at Powerscourt, mounted on papier-mache heads, were bought at Munich in 1863, by the advice of the late Count Arco-Zinneberg, the owner of the famous collection in the Wittelsbacher Platz at Munich. The hall where they hang contains upwards of 2500 heads of German Red-deer and Roe-deer of extraordinary weight and size, forming with the one exception of the King of Saxony's collection at Moritzburg, near Dresden, the finest in the world. Count Arco became so well known as a collector that every fine specimen was brought to him for purchase.



Antlers of Red Deer. From a specimen in the Castle at Moritzburg.  
After Dr. A. B. Meyer.

#### i.—ANCIENT CONTINENTAL RED DEER.

Length (straight).	Circum- ference.	Tip to Tip.	Spread.	Points.	Locality.	Owner.
...	...	...	...	33 + 29	?	H.M. the King of Saxony, Moritzburg.
1-48	14 of burr	...	6 ft. 3 $\frac{1}{6}$	12 + 11	?	Do.
...	...	...	...	25 + 12	?	Do.
...	...	...	...	28	?	H.R.H. the Duke of Saxe- Coburg and Gotha.
46 $\frac{1}{2}$	8 $\frac{3}{4}$ above trez	5 ft. 2 $\frac{1}{2}$	...	22	Alpine Stag?	Count Erbach-Erbach.
...	9 $\frac{3}{4}$	...	...	28	Do.	Do.
...	...	...	...	22	Switzerland	Do.
(on curve) 39 $\frac{1}{2}$	5 $\frac{1}{2}$	16	22 $\frac{1}{2}$ inside	9 + 9	?	Viscount Powerscourt.
39 $\frac{1}{2}$	6 $\frac{1}{2}$	22	31 $\frac{1}{2}$ 39 outside	6 + 6	Germany	Do.

<sup>1</sup> Weight, 41 $\frac{1}{2}$  lbs.

*j.*—NEW ZEALAND RED DEER (*introduced*).

Average height at shoulder, 47 inches.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Weight.	Locality.	Owner.
-42	5½	...	...	37½	9+7	...	Otago . .	W. Allen.
-41½	6	16	...	28½	6+5	...	Do. . .	Do.
-41	6¼	...	...	31½	6+5	...	Do. . .	J. S. Handyside.
-41	5¼	...	...	37	7+6	...	Do. . .	C. R. Westmacott.
-39	5½	...	...	31	6+6	...	Do. . .	H. McLean.
-38	5	...	...	33	6+6	...	Do. . .	E. C. Studholm.
37½	5¼	19¼	28½	...	6+6	400 lb. esti- mated	Do. . .	C. R. Westmacott.
-37	5	...	...	34	6+5	...	Do. . .	W. Telford.
-36½	6¾	...	32½	...	9+9	...	Wairarapa . .	J. S. Handyside.
-36	4¾	...	...	33½	5+5	...	Otago . .	W. Telford.
31½	5¾	10½	18	...	6+7	...	North Island . .	Rupert Wilkin.



Skull and Antlers of Caspian Red Deer shot in the Western Caucasus by St. George Littledale.

**CASPIAN RED DEER or MARAL** (*Cervus elaphus maral*).

In this variety of the red deer, which probably intergrades with the typical race in the western Carpathians, the height at the shoulder reaches to about  $4\frac{1}{2}$  feet, and the build is stouter, the neck thicker, and the head longer and more pointed than in the true red deer. The reddish summer coat of immature animals is very generally marked with numerous yellowish spots; and the colour of the winter coat is dark slaty gray on the back, with the tail-patch of a very bright



yellow, and a large amount of black on the shoulders, thighs, and under parts. The large and massive antlers are generally less complex than those of the typical race, the number of points being seldom more than eight on a side, and frequently only six ; while the bez tine, which may be wanting, is often shorter than the long and upwardly curved brow tine, and the fourth tine is generally more distinct from the crown. The average weight is given as about 40 stone.

The typical locality of this race of red deer is the Caspian provinces of Northern Persia, whence it extends into the Crimea, and probably Asia Minor, and so on into Transcaucasia, the Caucasus, probably Circassia, and the Galician Carpathians. The exact limits between the range of this and the typical race are not yet determined ; and it is noteworthy that specimens from the Caucasus have shorter faces than those from Northern Persia, and thus approximate to the true red deer. In Asia the term "maral" is applied not only to this animal, but also to Bedford's Deer and the Altai Wapiti.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Esti- mated Weight. st. lbs.	Locality.	Owner.
48½	6	30	41½	...	5+6	...	Ichater Dagh, Crimea	H. R. H. the Duke of Saxe- Coburg and Gotha.
48½	7½	(single antler)	...	...	12	...	Asia Minor	Lord A. Hay, British Museum.
48	7¼	...	...	...	...	...	Caucasus	St. George Littledale.
47½	5½	38	...	...	6+5	...	Do.	Do.
47	7½	36	37½	...	6+7	...	Do.	Do.
46½	5½	18	33	...	8+8	...	Do.	Do. British Museum.
45½	7½	25½	35½	...	8+8	...	Do.	St. George Littledale.
-45½	8½	65½	...	...	14	...	Do.	Grand Duke Mikhaelo- vitch.
45½	7½	32½	40½	46	8+8	...	Do.	Prince Demidoff.
45½	5½	42	35½	...	6+7	...	Ak Dagh, Asia Minor	F. C. Selous.
45½	7½	...	...	...	9+6	...	Asia Minor	Sir Edmund G. Loder, Bart.
-45	8	36	42	...	11+10	53 4	Caucasus	Prince Demidoff.
44½	6½	33½	35½	...	7+5	...	Do.	St. George Littledale.
44½	6½	(single antler)	...	...	9	...	Asia Minor	C. G. Danford, British Museum.
43½	6	...	40	...	8+6	...	Asia Minor	M. Le C. Findlay.
43½	6½	21½	35	...	7+7	...	Caucasus	St. George Littledale.
43½	5½	16	28	...	6+6	...	Crimea.	Earl of Dunmore.

**CASPIAN RED DEER or MARAL (*Cervus elaphus maral*)—*continued*.**

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Esti- mated Weight.	Locality.	Owner.
-42 $\frac{1}{2}$	6 $\frac{1}{2}$	25	...	34	10+11	...	Crimea (?)	H. J. Elwes.
42 $\frac{1}{2}$	7	27	31 $\frac{1}{2}$	34 $\frac{1}{2}$	8+7	...	Caucasus	Prince Demidoff.
-42	6	42	...	50	10+9	...	Crimea (?)	H. J. Elwes.
41 $\frac{1}{8}$	5 $\frac{3}{4}$	15 $\frac{1}{2}$	28 $\frac{1}{2}$	...	6+5	...	Caucasus	H.R.H. le Duc d'Orléans.
40 $\frac{1}{2}$	5 $\frac{3}{4}$	22 $\frac{1}{4}$	32 $\frac{1}{2}$	...	6+6	...	Ak Dagħ	H. O. Whittall.
40 $\frac{1}{2}$	5 $\frac{3}{4}$	28 $\frac{1}{2}$	34 $\frac{1}{2}$	...	8+7	...	?	Duke of Bedford.
40	5 $\frac{1}{2}$	21 $\frac{1}{4}$	27 $\frac{1}{2}$	...	6+6	...	Ak Dagħ	H. O. Whittall.
39 $\frac{3}{4}$	5 $\frac{1}{4}$	33	36 $\frac{1}{4}$	...	8+7	...	Do.	F. C. Selous.



Head of Caspian Red Deer shot in Asia Minor by F. C. Selous.

**BARBARY RED DEER** (*Cervus elaphus barbarus*).

For characters, see under heading of *Cervus elaphus*.

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
38 $\frac{7}{8}$	5 $\frac{3}{8}$	...	...	...	6+5	North Africa .	Sir Edmund G. Loder, Bart.
36 $\frac{1}{2}$	4 $\frac{1}{4}$	22 $\frac{7}{8}$	28 $\frac{3}{4}$	...	4+4	Do. .	British Museum.
36 $\frac{3}{8}$	4 $\frac{1}{2}$	17 $\frac{1}{2}$	25 $\frac{3}{8}$	...	4+4	Do. .	Do.

**DUKE OF BEDFORD'S DEER** (*Cervus xanthopygus*).

Apparently allied to the red deer, but the antlers probably with not more than seven points each, and the coat rather more wapiti-like. Tail comparatively short, and limbs relatively long, as is the face. In summer the head and neck are dark slaty, as are the inner sides of the limbs, while the rest of the upper parts is bright foxy red (occasionally browner), with the tail-patch sometimes totally wanting, or rather indistinct, and little or no black on the under parts and inner surfaces of the thighs; in winter the upper parts brownish gray with a very large and conspicuous bright orange tail-patch and a blackish mane, the tips of the hairs showing a large amount of black.

This deer inhabits Manchuria, and probably some of the other districts of North-Eastern Asia, but the western limits of its range are still undetermined. It is regarded by Monsieur E. de Pousargues as inseparable from the Manchurian wapiti; but this is not borne out by the specimens now living in England. If they survive, the question can be decided in a year or two.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
-20 $\frac{1}{8}$	4 $\frac{3}{8}$	14 $\frac{1}{4}$	16 $\frac{1}{8}$	4+3	Manchuria . .	Paris Museum (Type Specimen).



Head of Hangul. From a specimen shot by J. G. Apcar in Kashmir.

**HANGUL or KASHMIR STAG (*Cervus cashmirianus*).**

In this very distinct species the first or brow tine arises at a considerable distance above the burr, or coronet, of the antlers, instead of close to it, as in the red deer; the bez tine is usually longer than the brow; the total number of points is generally only five aside, although a third tine may occasionally be added to the normal terminal pair, thus forming an imperfect cup; and the beam of each antler is much curved in towards the middle line of the head. The tail is short, and not included in the light patch on the buttocks, which, at least frequently, is very small; and the tuft on the hind cannon-bone is situated lower down than in the red deer. In winter the general colour of the coat is brown, brownish ash, or liver-colour, with the hairs speckled; the light area on the inner side of the buttocks

being dirty white, with a blackish line on the inner sides of the thighs, the upper side of the tail black, and the lips, chin, and inner surface of the ears white or whitish. In the fawns the spotting is stated to remain much longer than in the red deer. In the pairing season the old stags squeal like a wapiti, instead of roaring in the red deer fashion.

The typical hangul inhabits the forest districts of the north side of the vale of Kashmir and some of the neighbouring valleys, at elevations ranging from 9000 to 12,000 feet in summer, but descending to about 5000 feet in winter. In this race (*C. cashmirianus typicus*) the terminal or fifth tines of the antlers are so much bent inwards as to be separated by a comparatively small interval. In the forests of the Yarkand river the species is represented by a second local race (*C. cashmirianus yarcandensis*), in which the antlers are less spreading, with their terminal tines less inclined inwards, and therefore more widely separated. The trez tine in this race is typically larger and longer than either of the lower ones, the brow and bez, in this respect and in the closer proximity of the brow and bez tines more resembling the Caspian than the Kashmir Stag. The height at the shoulder varies from about 4 feet to 4 feet 4 inches; the average weight being about 450 lbs.

This deer, although first discovered by the late Dr. H. Falconer in the Kashmir valley, was named by Dr. G. R. Gray of the British Museum. The finest pair of antlers of which Mr. A. O. Hume has any record were given by Raja Gulab Sing to Colonel King, then commanding the 14th Dragoons. On his death they passed to Captain, afterwards, I think, Colonel, Prettyjohn of the same regiment. What became of these antlers Mr. Hume was never able to ascertain, but he measured them at Meerut in 1852 or 1853, and the record stands, R. 52 L. 53½, measured along the curve inside. Girth 10 inches at burr, and 7 half-way between bez and trez tines. They were a very wide-branching, symmetrical pair.

Length on outside curve.	Circumference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
-48	...	...	...	...	Kashmir	The late Dr. Leith Adams.
-47	7½	21	36	7+5	Do.	Bombay Natural History Society's Museum.
47	6½	21½	36½	5+5	Do.	Sir Edmund G. Loder, Bart.
47	6½	30	35½	8+8	Do.	Duke of Wellington.
-47	...	...	...	...	?	Major A. E. Ward.
45½	8	35	41	6+6	Kashmir	Hume Collection, British Museum.
45½	6	25½	36	8+8	Do.	Sir Victor Brooke's Collection.
45	6½	19	34	6+6	Do.	Col. R. Pole-Carew, C.B.

**HANGUL or KASHMIR STAG (*Cervus cashmirianus*)—*continued*.**

Length on out- side curve.	Circum- ference between bez and trez.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
-44 $\frac{3}{4}$	6	20	43	5+5	Lidar Valley . .	Officers' Mess, Q.O. Corps of Guides.
-44 $\frac{5}{8}$	6 $\frac{1}{2}$	31 $\frac{1}{2}$	44 $\frac{3}{4}$	5+5	Kishenganga Valley	Do.
-44 $\frac{1}{2}$	6	21 $\frac{1}{4}$	36 $\frac{1}{2}$	5+5	Do. .	The late Capt. E. W. Codrington.
44	7 $\frac{1}{4}$	30 $\frac{3}{4}$	40 $\frac{7}{8}$	5+5	Sind Valley . .	P. H. G. Powell-Cotton.
44	6 $\frac{3}{4}$	23 $\frac{1}{4}$	36 $\frac{1}{2}$	5+5	Do. .	Naval and Military Club.
44	6	27	36	5×5	Kashmir . .	Hon. Walter Rothschild.
43 $\frac{7}{8}$	5 $\frac{7}{8}$	15 $\frac{7}{8}$	32	5+5	Do. .	Hon. Charles Ellis.
43 $\frac{3}{8}$	6 $\frac{1}{2}$	25 $\frac{3}{8}$	36 $\frac{1}{2}$	...	Do. .	Do.
43	6	20	35	6+5	Sind Valley . .	A. O. Hume, C.B.
43	5 $\frac{1}{4}$	26 $\frac{1}{8}$	37 $\frac{7}{8}$	6+5	Kashmir . .	Martyn Kennard.
42	4 $\frac{1}{2}$	13 $\frac{1}{4}$	29 $\frac{1}{4}$	5+5	?	Duke of Bedford.
42	5 $\frac{3}{4}$	13 $\frac{1}{2}$	26 $\frac{1}{2}$	5+5	Kashmir . .	E. L. Phelps.
41 $\frac{3}{4}$	5 $\frac{3}{4}$	23 $\frac{1}{2}$	35	5+5	Do. .	Major Kingsley Foster.
41 $\frac{3}{8}$	5 $\frac{3}{4}$	23 $\frac{3}{4}$	33	5+5	Do. . .	R. Lydekker, British Museum.
41 $\frac{1}{4}$	6	15 $\frac{5}{8}$	29	7+6	Tral Preserve . .	P. W. Cobbold.
41 $\frac{1}{4}$	5 $\frac{1}{4}$	34	49	6+5	?	C. H. Seely.
-41	...	...	...	13	Tral Preserve } .	The Maharaja of Travancore, G.C.S.I.
-41	...	...	...	12	Do. }	
-41	6	23	37 $\frac{1}{2}$	...	Kashmir . .	The late Major W. D. B. Fenton.
40 $\frac{1}{2}$	5 $\frac{3}{8}$	31 $\frac{1}{2}$	39 $\frac{1}{2}$	6+5	Do. .	F. W. H. Walshe.
40 $\frac{1}{2}$	6 $\frac{1}{2}$	15 $\frac{1}{2}$	28	5+5	Do. .	Sir Robert Harvey, Bart.
40 $\frac{1}{4}$	7 $\frac{3}{8}$	24 $\frac{1}{2}$	3	5+5	Do. .	Capt. H. W. Codrington.
39 $\frac{1}{2}$	5 $\frac{3}{4}$	21 $\frac{1}{2}$	33	5+5	Do. .	H. Maude.
39	5 $\frac{1}{4}$	26	35 $\frac{1}{2}$	5+5	?	Major A. Nugent.
38 $\frac{1}{2}$	5	14 $\frac{1}{2}$	29	5+5	Rewa Nalla . .	The late Major A. Burton.
37 $\frac{1}{2}$	5	17	28 $\frac{1}{2}$	5+5	Kashmir . .	Reginald Beech.
37 $\frac{1}{2}$	5 $\frac{5}{8}$	26 $\frac{3}{4}$	34 $\frac{1}{2}$	6+6	Do. .	Major C. S. Cumberland.
37	5 $\frac{7}{8}$	22 $\frac{3}{8}$	31 $\frac{3}{4}$	6+6	Do. . .	W. R. Bindloss.
37	5	20	29	5+5	Do. .	H. Z. Darrah.
37	5 $\frac{1}{4}$	19 $\frac{1}{2}$	31 $\frac{1}{2}$	5+5	Do. . .	J. G. Aparca (see Illustration).



Skull and Antlers of Yarkand Stag. From A. O. Hume's specimen.

**YARKAND STAG** (*Cervus cashmirianus yarcandensis*).

For characters, see Hangul, p. 37.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
40 $\frac{1}{4}$	5 $\frac{1}{2}$	23 $\frac{3}{4}$	31 $\frac{3}{4}$	...	5 + 5	Near Maralbashi .	A. O. Hume, C.B. (See illustration.)
40	5 $\frac{1}{2}$	25	31	...	6 + 5	Maralbashi .	E. L. Phelps.
39 $\frac{1}{2}$	6	24 $\frac{1}{2}$	25	...	7 + 6	Do. .	A. O. Hume, C.B.
39 $\frac{1}{4}$	5 $\frac{3}{4}$	16 $\frac{1}{2}$	28 $\frac{3}{4}$	...	6 + 6	Do. .	David T. Hanbury.



Skull and Antlers of Shou. From A. O. Hume's specimen.

**THE SHOU (*Cervus affinis*).**

A very large stag with antlers of the general type of those of the hangul, but larger, and with the beam bent suddenly forward at the trez tine, so that the upper half overhangs the face, the number of points being usually five; the brow tine is less constantly longer than the bez. General colour probably rufous brown, with a light tail-patch in winter.

The habitat of this imperfectly known deer appears to be the districts immediately north of Bhutan, and probably the valley eastwards of Chumbi, which drains northwards into the Sangpo. An apparently allied, although smaller, deer is found in Russian Turkestan (Bokhara or Khiva).



Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
55 $\frac{3}{4}$	6 $\frac{1}{2}$	17 $\frac{1}{4}$	40 $\frac{3}{8}$	7+6	?	A. O. Hume, C.B. (See illustration.)
54 $\frac{3}{8}$	6 $\frac{5}{8}$	21 $\frac{5}{8}$	37 $\frac{1}{4}$	5+5	?	Dr. Campbell, British Museum.
55 $\frac{3}{4}$	6 $\frac{7}{8}$ (see illustration, p. 55)	26 $\frac{1}{8}$	44	5+5	?	The late B. H. Hodgson, British Museum.
53 $\frac{1}{4}$	6 $\frac{7}{8}$	30	45 $\frac{3}{4}$	4+5	?	Hume Collection, British Museum.
-53	9	...	40	5+5	?	The late Col. H. C. B. Tanner.
52	8	...	...	...	?	Hon. Walter Rothschild.
49 $\frac{1}{2}$	7 $\frac{1}{2}$	38	45 $\frac{1}{2}$	5+5	?	Col. J. Biddulph.
48 $\frac{7}{8}$	6 $\frac{1}{2}$	19 $\frac{3}{8}$	38 $\frac{1}{8}$	7+5	?	Sir Edmund G. Loder, Bart.
-48	6 $\frac{3}{4}$	30 $\frac{3}{4}$	<sup>1</sup> 39	5+5	Tibetan Frontier	H. J. Elwes.
-48	6 $\frac{3}{8}$	17	34 $\frac{1}{2}$	6+5	?	H. R. H. le Duc d'Orléans.
47 $\frac{7}{8}$	5 $\frac{3}{8}$	30 $\frac{3}{8}$	40 $\frac{1}{2}$	5+5	?	British Museum.
-43	...	...	...	...	Chumbi Valley	The late Sir Ashley Eden, G. C. S. I., Indian Museum.
42 $\frac{3}{4}$	5 $\frac{7}{8}$	23 $\frac{3}{8}$	31 $\frac{1}{4}$	5+5	?	British Museum.
41	6 $\frac{1}{4}$	...	...	6+4	?	Duke of Bedford.
39 $\frac{3}{4}$	5 $\frac{3}{8}$	20	31 $\frac{1}{4}$	5+5	?	Edward P. Tennant.

<sup>1</sup> Spread.**THOROLD'S DEER (*Cervus albirostris*).**

Thorold's deer is of the same approximate dimensions as the hangul, from which it is readily distinguished by the more flattened antlers, which have no bez tine, and do not curve inwards, but are suddenly bent backwards at the point of origin of the trez ; the total number of points being either five or four. Equally distinctive is the pure white muzzle and chin, the white inner surface of the ears, the reversal of the hair on the middle of the back, so as to form a kind of hump on the withers with the points of the hairs directed towards the neck, the low position and large size of the gland-tuft on the hind cannon-bone, and the shortness of the tail, which is included in the very large straw-coloured area of the buttocks. The general colour of the coat is uniformly dark brown, with the hairs, which are remarkable for their coarse and brittle nature, minutely speckled.

The Tibetan plateau, with perhaps some of the neighbouring parts

of Central Asia, is the home of this fine species of deer, which was originally described by the late Colonel Przewalski under the name given above. Subsequently two examples were obtained by Dr. W. G. Thorold, to the north-east of Lhasa, at an elevation of between 13,000 and 14,000 feet, which, under the impression that they indicated a new species, were named *C. thoroldi* by Mr. W. T. Blanford.

Length on out-side curve.	Circumference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
38½	4½	37	27	5+4	Central Tibet	Hon. Walter Rothschild.
38	5¼	...	...	5+5	Do. . . .	British Museum.
-36	4½	32	32	5+5	? <sup>1</sup>	Indian Museum.

<sup>1</sup> Bought at Darjiling, thither brought by Tibetans.

### TRUE WAPITI (*Cervus canadensis*).

Wapiti are very large deer of the red deer group, easy of recognition by the form of their antlers, which are of great size, carrying more than five tines, curving backwards, and much flattened in the upper half. They always have the bez tine developed, but their most characteristic feature is the great size of the fourth tine, which is larger than either of the others, and with the fifth, which is also long, forms a nearly straight fork; the fourth, fifth, and sixth tines being situated almost in the plane of the portion of the beam immediately below them, so that they more or less completely hide one another when viewed from the front aspect. The brow tine rises close to the burr, and is nearly as long as the bez. The tail is extremely short, the light tail-patch very large; and the neck and under parts are blackish, the general colour of the summer coat being yellowish brown on the upper-parts.

Wapiti (known in America as Elk) range from North America to North-Eastern and Central Asia; the typical form being the East American wapiti (*C. canadensis typicus*), in which the legs are comparatively short, and the portion of the antlers above the fourth tine is fully developed, the height at the shoulder reaching to about 5 feet 4 inches, and the weight from 700 to 1000 lbs. On the other hand, the West American wapiti (*C. canadensis occidentalis*) differs by the abortion of the upper part of the antlers, the darker colour, and lighter build.



Head of East American or true Wapiti.  
Shot by W. Moncreiffe. For measurements see next page.

**TRUE WAPITI (*Cervus canadensis*)—continued.**

Length on outside curve.	Circumference between bez and trez.	Circumference of burr.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.	Owner.
-70	...	14 $\frac{1}{8}$ above burr.	...	...	68	6+6	Olympic Mts., Washington	W. F. Sheard.
-66	...	...	...	...	60	6+6	Wyoming	J. Darley.
-65	7 $\frac{5}{8}$	...	...	...	40	7+7	Laramie Plains, Wyoming	Schoverling, Daly, and Gales.
-64 $\frac{3}{4}$	...	9 $\frac{3}{4}$	41 $\frac{1}{2}$	49	...	6+7	Wyoming	James J. Harrison.
64 $\frac{1}{2}$	8	...	31 $\frac{1}{2}$	45	52	7+6	?	Viscount Powerscourt.
-64 $\frac{1}{4}$	8	...	...	48	...	7+7	N.W. Wyoming	A. Rogers.
-63 $\frac{3}{4}$	8 $\frac{1}{4}$	...	49 $\frac{1}{4}$	48 $\frac{1}{2}$	...	7+9	North Prong	Frank Cooper.
62	7 $\frac{3}{8}$	...	33 $\frac{1}{4}$	50 $\frac{5}{8}$	...	7+7	Snake River, Colorado	Ernest Farquhar.
61 $\frac{1}{2}$	7 $\frac{1}{2}$	...	...	45	...	6+6	Bighorn Mts., Wyoming	„ „
-61	8	...	...	52	...	6+6	Do.	H. Seton-Karr.
61	8.	...	36 $\frac{1}{2}$	46 $\frac{1}{2}$	55	8×8	?	Viscount Powerscourt.
<sup>1</sup> -60 $\frac{3}{4}$	7 $\frac{7}{8}$	...	...	52	...	6+6	?	W. A. Baillie Grohman.
60 $\frac{1}{2}$	8 $\frac{1}{4}$	...	...	55	...	7+6	Wyoming	E. Grant.
60 $\frac{5}{8}$	7 $\frac{1}{4}$	...	43	46 $\frac{1}{4}$	...	6+6	Do.	Major C. C. Ellis.
60	6 $\frac{3}{4}$	...	31 $\frac{1}{2}$	41 $\frac{1}{4}$	44	9+7	?	Viscount Powerscourt.
-59 $\frac{3}{4}$	...	13	...	...	...	...	Wyoming	The late Sir Samuel Baker.
59 $\frac{1}{2}$	8 $\frac{1}{2}$	3	37 $\frac{1}{4}$	47	...	8+8	S.E. Do.	Lieut.-General B. Hankey.
59 $\frac{1}{2}$	7 $\frac{1}{2}$	...	...	<sup>1</sup> 45	...	6+6	?	H. Seton-Karr.
58 $\frac{1}{2}$	8 $\frac{3}{4}$	...	39 $\frac{3}{4}$	43 $\frac{1}{2}$	53 $\frac{1}{2}$	7+6	?	Viscount Powerscourt.
58 $\frac{1}{2}$	...	9 between brow and bez.	...	46 $\frac{1}{2}$	50 $\frac{1}{2}$	10+7	Wyoming	Hon. T. A. Brassey.
-58 $\frac{1}{2}$	8 $\frac{1}{2}$	...	...	44 $\frac{1}{2}$	...	6+6	Do.	J. D. Cobbold.
-58 $\frac{1}{2}$	8 $\frac{1}{4}$	...	48	...	50	6+6	?	F. B. Tolhurst.
58	9 $\frac{1}{10}$	42	47 $\frac{1}{4}$	7+6	...	7+6	Wyoming	A. H. Straker.
58	7 $\frac{3}{8}$	...	43 $\frac{1}{2}$	49	...	9+8	Do.	W. Moncreiffe.
58	7	...	46	49	51 $\frac{1}{2}$	6+6	?	(See illustration.) Viscount Powerscourt.
57 $\frac{1}{2}$	6 $\frac{7}{8}$	...	24 $\frac{1}{4}$	35 $\frac{5}{8}$	...	6+6	Montana	Capt. Abdy.
57 $\frac{3}{8}$	7	...	47	48 $\frac{5}{8}$	...	6+6	Wyoming	Hon. Charles Ellis.
57 $\frac{1}{4}$	...	9 $\frac{5}{8}$	32	42 $\frac{1}{4}$	...	7+7	Do.	Sir Humphrey de Trafford, Bart.

<sup>1</sup> Measured by American Exhibition Committee.

TRUE WAPITI (*Cervus canadensis*)—*continued*.

Length on outside curve.	Circumference between bez and trez.	Circumference of burr.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.	Owner.
57	8 $\frac{1}{8}$	...	35 $\frac{1}{2}$	34	43	6+6	Wyoming	Viscount Powerscourt.
-57	7 $\frac{1}{4}$	...	...	...	...	7+7	Do.	Count F. Trauttmansdorff.
57	7 $\frac{1}{8}$	..	53	49 $\frac{1}{2}$	61	8+9	Wyoming	Sir Edmund G. Loder, Bart.
57	7 $\frac{1}{8}$	...	35 $\frac{1}{8}$	41 $\frac{1}{8}$	...	6+6	Yellowstone Park	British Museum.
-56 $\frac{1}{2}$	6 $\frac{7}{8}$	...	...	...	46 $\frac{3}{8}$	6+6	Two Ocean Pass	Theodore Roosevelt.
56	8	...	39 $\frac{3}{4}$	40 $\frac{3}{4}$	44	8+6	?	Viscount Powerscourt.
-56	7 $\frac{3}{4}$	...	...	...	...	6+6	Wyoming	Count F. Trauttmansdorff.
56	7 $\frac{1}{4}$	...	35	43 $\frac{1}{2}$	...	8+7	Saskatchewan District, Canada	Earl of Ava.
55 $\frac{3}{8}$	7 $\frac{5}{8}$	...	43 $\frac{1}{4}$	48 $\frac{3}{8}$	...	7+7	Wyoming	Hon. Charles Ellis.
55 $\frac{3}{8}$	7	...	43 $\frac{1}{2}$	47 $\frac{5}{8}$	...	6+5	Saskatchewan District, Canada	Capt. G. Dalrymple White.
-55 $\frac{1}{2}$	8	...	38	43	..	6+6	Wyoming	James J. Harrison.
-55 $\frac{1}{2}$	7 $\frac{1}{2}$	..	...	48 $\frac{3}{4}$	...	8+7	?	Otho Shaw.
55 $\frac{1}{2}$	6 $\frac{1}{2}$	...	44	45 $\frac{1}{2}$	...	6+6	?	A. H. Pollen.
55 $\frac{3}{8}$	7 $\frac{1}{8}$	...	46 $\frac{1}{4}$	...	...	7+6	?	St. George Littledale.
55	8 $\frac{1}{4}$	...	...	41 $\frac{1}{4}$	...	6+6	Wyoming	Major Maitland Kirwan.
55	8	...	...	45 $\frac{1}{2}$	...	7+6	Do.	Do.
55	7 $\frac{1}{8}$	...	...	47 $\frac{1}{2}$	...	6+5	Do.	E. N. Buxton.
-55	8 $\frac{1}{2}$	...	53	54 $\frac{1}{2}$	...	17	?	Sir H. B. Meux, Bart.
-55	8 $\frac{1}{8}$	...	...	41 $\frac{1}{4}$	...	6+6	?	A. Pendarves Vivian.
<sup>1</sup> 55	7 $\frac{3}{4}$	...	21 $\frac{1}{2}$	35 $\frac{1}{2}$	43	7+6	?	Viscount Powerscourt.
<sup>2</sup> 55	6 $\frac{5}{8}$	...	...	...	...	14	America	Duke of Bedford.
55	6 $\frac{1}{2}$	...	...	...	...	6+6	Colorado	Crawford G. Logan.
-54 $\frac{3}{4}$	6 $\frac{3}{4}$	...	39 $\frac{3}{8}$	43 $\frac{1}{2}$	...	6+6	Montana	Count Scheibler.
54 $\frac{1}{2}$	8	...	37	45 $\frac{1}{2}$	...	6+6	Wyoming	Sylvester Browne.
54 $\frac{1}{2}$	...	...	...	...	...	14	Colorado	Sir Peter Walker, Bart.
54 $\frac{1}{2}$	8	...	34 $\frac{1}{4}$	45 $\frac{1}{2}$	...	6+5	Wyoming	Lieut.-Col. Hon. W. Coke.
54 $\frac{1}{2}$	9	...	...	palmated	...	11+7	Montana (?)	G. Wrey.
54 $\frac{1}{2}$	6 $\frac{3}{4}$	...	28	37	46	6+6	?	F. J. Mitchell.

<sup>1</sup> Shot by the Earl of Dunmore.<sup>2</sup> Shed antlers weighed 20 lbs.

TRUE WAPITI (*Cervus canadensis*)—*continued.*

Length on outside curve.	Circum- ference between bez and trez.	Circum- ference of burr.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.	Owner.
54 $\frac{3}{8}$	6 $\frac{1}{2}$	...	38 $\frac{3}{8}$	44 $\frac{1}{4}$	...	7+6	Wyoming	E. N. Buxton.
-54 $\frac{1}{4}$	8	...	...	43 $\frac{1}{2}$	...	10+10	Montana	W. A. Tulloch.
54 $\frac{1}{4}$	7 $\frac{5}{8}$	...	49 $\frac{7}{8}$	...	...	9+7	Wyoming	Hon. Walter Roths- child.
-54	8 $\frac{1}{4}$	...	...	...	...	13	Teton Mountains	H. Lennard.
<sup>1</sup> 54	7 $\frac{1}{4}$	...	...	48	...	8+7	Wyoming	Moreton Frewen.
54	7 $\frac{1}{2}$	...	32 $\frac{3}{4}$	39 $\frac{1}{2}$	47	11+8	Do.	Viscount Powers- court.
54	7 $\frac{5}{8}$	...	30 $\frac{3}{4}$	37 $\frac{3}{8}$	...	6+6	Do.	Capt. E. G. Ver- schoye.
54	7 $\frac{1}{4}$	...	...	48	...	7+8	Do.	Moreton Frewen.
54	7	...	29 $\frac{1}{2}$	35 $\frac{1}{2}$	44	7+6	Do.	H. Seton-Karr.
54	7 $\frac{3}{4}$	...	48	44	...	12	?	M. P. Grace.
-53 $\frac{1}{2}$	8	...	43	44 $\frac{1}{2}$	...	8+7	Wyoming	Count E. Hoyos.
-53 $\frac{1}{2}$	6 $\frac{1}{2}$	...	39	42	...	6+6	Do.	Captain G. Dal- rymple White.
53 $\frac{1}{2}$	7	...	41 $\frac{1}{2}$	42	...	7+7	Colorado	E. T. Logan.
53 $\frac{3}{8}$	7 $\frac{3}{8}$	...	47	49 $\frac{3}{4}$	...	8+7	Wyoming	Ford G. Barclay.
-53	...	12 $\frac{1}{2}$	...	...	...	...	Do.	The late Sir Samuel Baker.
53	8 $\frac{1}{4}$	...	29 $\frac{1}{2}$	36	38	7+6	Do.	Duke of West- minster.
53	7 $\frac{1}{4}$	...	41	43 $\frac{1}{2}$	...	6+6	Do.	Major H. J. Fer- guson.
53	7 $\frac{5}{8}$	13	37 $\frac{1}{2}$	41 $\frac{1}{2}$	51	7+7	?	Hon. Walter Roth- schild.
-52 $\frac{3}{4}$	7 $\frac{3}{4}$	...	38 $\frac{1}{2}$	41 $\frac{3}{4}$	...	6+5	Wyoming	Charles Makin.
52 $\frac{1}{2}$	7	...	32	43	49	7+6	Do.	J. B. Gilliat.
52 $\frac{1}{2}$	6 $\frac{1}{2}$	...	...	34 $\frac{3}{4}$	...	7+6	Do.	Ford G. Barclay.
52 $\frac{1}{2}$	6 $\frac{1}{2}$	...	39	42	...	6+6	Do.	Captain G. Dal- rymple White.
52 $\frac{3}{8}$	5 $\frac{3}{4}$	...	49 $\frac{3}{8}$	...	...	6+5	Colorado	Colonel Ralph Vivian.
52	8 $\frac{1}{2}$	...	...	...	...	6+6	Wyoming	Hon. F. Thellusson.
52	6 $\frac{3}{4}$	...	29 $\frac{1}{4}$	36 $\frac{1}{4}$	...	6+5	Colorado	T. C. E. Goff.
-52	7 $\frac{1}{2}$	...	46 $\frac{1}{2}$	...	...	6+6	Do.	Dublin Museum.
52	7 $\frac{1}{2}$	...	30	33	...	6+6	Wyoming	Captain G. Dal- rymple White.
52	8	...	48 $\frac{1}{2}$	49 $\frac{1}{2}$	...	8+7	Do.	Major H. C. Mor- land.

<sup>1</sup> Shot by Sir G. Gore, Bart.

TRUE WAPITI (*Cervus canadensis*)—*continued.*

Length on outside curve.	Circumference between bez and trez.	Circumference of burr.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.	Owner.
52	8	...	38½	44	...	8+8	Wyoming	Lord Rodney.
52	8½	...	37	40	...	6+6	Vancouver <sup>1</sup>	Barclay Bonthron.
52	6½	..	36	36½	41	6+4	Manitoba	Earl of Dunmore.
-52	8½	...	...	42	...	14	Do.	Prince Henry of Liechtenstein.
-52	7	...	30½	39	...	6+5	Washington Territory	P. B. Vander-Byl.
51½	7½	...	42	46½	...	6+6	Colorado	Captain E. G. Verschoyle.
51½	6½	...	41	44½	...	7+7	Idaho	H. C. Nelson.
-51½	8½	...	...	...	50	...	Wyoming	G. O. Shields.
51	7½	...	30	35	...	7+7	Do.	J. Turner-Turner.
51	6½	...	39	45	...	6+6	Do.	Captain E. G. Verschoyle.
-51	8¾	...	...	41	...	7+6	?	Captain Joscelyn Bagot.
50½	7¾	...	42	48½	...	7+7	Colorado	Colonel Ralph Vivian.
50½	7	...	36	47	...	7+6	Wyoming	Major C. F. Blane.
-50½	7½	...	...	56½	58½	7+6	Do.	Hugh Peel.
50½	6¾	...	50	43	...	6+6	Do.	Major Maitland Kirwan.
50½	7	...	43½	43½	...	6+5	Do.	W. Moncreiffe.
50½	6½	...	41½	47½	...	7+6	Do.	Lieutenant-Colonel Hon. W. Coke.
50½	7½	...	35	41	...	6+6	Do.	Hon. H. S. Somerset.
50	...	...	49	...	...	8+7	Do.	Otho Shaw.
50	6½	...	44	44½	47	6+6	Do.	V. Cholmondeley.
-50	...	11	..	...	...	13	Montana	T. W. H. Clarke.
50	7½	...	39½	40	...	6+7	Wyoming	Prince Demidoff.
50	7½	...	...	47½	...	6+6	?	J. M. Hanbury.
50	8½	...	39	40	...	6+6	?	Duke of Bedford.
50	7¾	...	43	40¾	...	6+6	?	Duke of Portland.
50	7	...	30½	39	...	6+5	Washington	P. B. Vander-Byl.
50	6½	...	40½	36¾	40	7+6	Manitoba	Major C. S. Cumberland.
-49¾	6¾	...	...	33¾	45	6+6	?	H. R. H. the Duke of Saxe-Coburg and Gotha.

<sup>1</sup> West American race.

**TRUE WAPITI** (*Cervus canadensis*)—*continued*.

Length on outside curve.	Circum- ference between bez and trez.	Circum- ference of burr.	Tip to Tip.	Widest inside.	Widest outside.	Points.	Locality.	Owner.
-49½	7¾	...	45½	45½	...	7+7	?	H. R. H. le Duc d'Orléans.
49½	8	...	...	43	...	11+8	Wyoming	Otho Shaw.
49½	6¼	...	34½	37¾	...	6+6	Do.	J. Kenneth Foster.
49¾	7¾	...	38½	...	...	15+10	Do.	Moreton Frewen.
-49¼	...	9½	28	36½	...	7+7	Canada	Paris Museum.
49¼	8¾	...	38½	41½	...	6+6	Montana	L. B. Lee.
-49¼	6½	...	38	46½	...	10+7	Vancouver <sup>1</sup>	A. E. Leatham.
49½	6¼	...	...	45	...	13	Montana	W. A. Fordham.
49	7½	...	26¾	34	41	7+6	Wyoming	J. L. Scarlett.
49	6½	...	48½	51	...	8+7	Do.	Hon. Gathorne Hardy.
49	7¾	...	33	41	...	8+5	Do.	H. Seton-Karr.
-48¾	...	11	27¾	32¾	...	7+7	Canada	Paris Museum.
-48	...	11½	...	...	...	17	Montana	T. W. H. Clarke.
48	7½	...	41	40¾	...	8+7	?	Duke of Bedford.
48	6¼	...	41	43	...	7+7	Wyoming	F. C. Selous.
48	6	...	40½	39	...	5+6	Do.	Captain G. J. Fitz- gerald.
47¼	5¾	...	48	42	...	8+6	Colorado	E. T. Logan.
47½	7¼	...	40	41	...	7+7	Wyoming	Sir Victor Brooke's Collection.
47	6½	...	40	42	...	6+6	Do.	W. W. Ashley.
-45	7¼	...	37	37	...	7+8	Vancouver <sup>1</sup>	Clive Phillipps- Wolley.

<sup>1</sup> West American race.



ALTAI WAPITI (*Cervus canadensis asiaticus*).

From the typical wapiti this well-marked local variety differs by its inferior size, relatively longer body and shorter limbs, and absolutely larger antlers ; the general colour of the coat being yellowish tawny at all times of year. This wapiti inhabits the forest-clad portions of the Altai and Thian-Shan ranges ; it was first described by Dr. Severtzoff under the name of *C. maral*, var. *asiatica*, and subsequently by Mr. Blanford, on the evidence of detached antlers obtained by the Second Yarkand Mission, as *C. eustephanus*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
<sup>1</sup> -55	8	...	...	...	6+7	Bought at Kashgar .	Earl of Northbrook.
-51	10 $\frac{0}{10}$	...	...	...	...	?	W. T. Blanford.
50 $\frac{3}{4}$	6	29 $\frac{1}{2}$	38 $\frac{1}{2}$	...	8+7	Altai . .	Duke of Bedford.
-49 $\frac{8}{8}$	8	41	42 $\frac{3}{8}$	...	7+7	East Thian Shan .	Paris Museum.
48 $\frac{1}{2}$	6 $\frac{1}{4}$	36	33	...	6+6	Altai . .	Duke of Bedford.
45 $\frac{1}{2}$	6 $\frac{1}{2}$	34 $\frac{1}{2}$	39 $\frac{1}{2}$	47	5+5	Do. .	H. J. Elwes.
43 $\frac{3}{4}$	5 $\frac{7}{8}$	20 $\frac{1}{8}$	35	...	6+5	?	A. O. Hume, C.P.
41 $\frac{3}{4}$	6 $\frac{1}{2}$	37 $\frac{1}{2}$	40 $\frac{1}{2}$	44	5+5	Altai .	H. J. Elwes.
39	4 $\frac{7}{8}$	32	36	37 $\frac{1}{2}$	6+6	Thian Shan .	H. J. Elwes.

<sup>1</sup> Shed antlers bought by Sir Douglas Forsyth.

**MANCHURIAN WAPITI** (*Cervus canadensis luehdorfi*).

Antlers of a much shorter and stouter type than in the Altai wapiti, with the portion above the fourth tine (which is also relatively smaller) generally only slightly developed, and sometimes aborted. Not unfrequently "sports" in the neighbourhood of the fourth and fifth tines; and in one instance the fourth tine itself split into a regular fork. Build and colour very similar to that of the typical wapiti, but the height apparently lower. General colour in winter brownish gray, in summer light brown, with the dark winter mane and under parts of the true wapiti.

Although the antlers of this race (known in this country by the under-mentioned and other specimens in the collection of the Duke of Bedford) are at first sight very unlike those of either the Altai or the true wapiti, yet they present the essential wapiti characters. These are shown in their flatness, the preponderating size of the fourth tine, and the position of the fifth tine in the same plane as the latter. They are much more like the antlers of the West American wapiti (a fine pair of which are exhibited in the British Museum); these being relatively short and stout, with a tendency to the abortion of all the tines above the fifth, and also to the production of "sports."

As mentioned above, this deer is identified by Monsieur E. de Pousargues with *C. xanthopygus*; but there is no evidence that the coat is red in summer, and the antlers of immature specimens of the latter now living in England do not display decided wapiti characters. Moreover, these animals roar somewhat like a red deer, instead of squealing or whistling like a wapiti.

*Distribution*.—Northern Manchuria and Amurland.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Spread.	Points.	Locality.	Owner.
33½	5½	18½	21½	...	6+6	?	H. J. Elwes.
32½	5½	26⅞	26⅜	29⅞	7+6	?	Do.
31¾	6	17	25¾	29	8+7	?	Duke of Bedford.
31½	5	23½	24	26	6+6	?	Do.
31	4¾	26½	25¾	30½	6+5	?	Do.



Antlers of Japanese Sika.

From a specimen presented to the British Museum by Viscount Powerscourt.

### JAPANESE SIKA (*Cervus sika*).

This species is the typical representative of a small group of deer in which the antlers are shorter and simpler than is usually the case in the red deer group, and have generally four tines, including a trez, but lacking a bez. The coat is spotted, at least in summer, and there is a black-bordered white area in the region of the tail, which is relatively long. In the Japanese sika the white area on the buttocks is large, and extends on to their lateral surfaces; while the coat is chestnut red with numerous white spots in summer, and browner, with no, or only indistinct traces of, spots in winter. These deer are distributed over Northern China, Manchuria, and Japan, and are represented by two closely allied races differing chiefly in size. In the true Japanese sika (*C. sika typicus*), which inhabits Japan and Northern China, the height at the shoulder varies from about 2 feet 8 inches to 2 feet 10 inches, whereas in the Manchurian sika (*C. sika manchuricus*) it reaches

3 feet 3 inches. Both races have been acclimatised in English and Irish parks.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
31 $\frac{1}{4}$	5 $\frac{1}{4}$	27 $\frac{1}{8}$	4 + 4	Japan . . .	Sir Edmund G. Loder, Bart.
25 $\frac{3}{8}$	4 $\frac{1}{8}$	20 $\frac{1}{4}$	4 + 4	Do. . .	Do.
22	4	16 $\frac{3}{4}$	5 + 4	Bred in Ireland . .	Sir Victor Brooke's Collection.
21 $\frac{5}{8}$	3 $\frac{3}{8}$	16 $\frac{1}{2}$	10 + 6	Island of Yezzo . .	Do.
18 $\frac{1}{2}$	3 $\frac{3}{4}$	...	9	Bred in Ireland . .	Do.
-18 $\frac{1}{2}$	3 $\frac{1}{8}$	11	4 + 4	Kobe, Japan . . .	Dr. Percy Rendall.
16 $\frac{3}{4}$	3 $\frac{1}{8}$	...	4 + 3	Japan . . .	British Museum.
16 $\frac{5}{8}$	3	9 $\frac{5}{8}$	4 + 3	Bred in Ireland . .	Hon. John Ward.
15 $\frac{1}{2}$	2 $\frac{3}{4}$	9 $\frac{3}{4}$	4 + 4	Bred in England . .	Duke of Bedford.
<sup>1</sup> 15 $\frac{1}{2}$	2 $\frac{3}{4}$	14 $\frac{1}{4}$	4 + 4	Bred in Ireland . .	Marquis of Hamilton.
<sup>2</sup> -15 $\frac{1}{2}$	...	...	6 + 5	Do. . .	Viscount Powerscourt.
15 $\frac{1}{4}$	3 $\frac{3}{8}$	12 $\frac{1}{4}$	4 + 4	Do. . .	Hon. R. A. Ward.

<sup>1</sup> Weight 10 stones 3 lbs. as it fell.

This stag when killed was estimated to be fifteen or sixteen years old, and had no teeth left.

The following specimens belong to the Manchurian race.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
-26	4 $\frac{1}{4}$	13 $\frac{3}{8}$	4 + 4	Manchuria . . .	Paris Museum.
15 $\frac{1}{2}$	3	...	4 + 4	Woburn . . .	Duke of Bedford.

#### HYBRID JAPANESE and RED DEER.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Weight.	Locality.	Owner.
29 $\frac{1}{4}$	4 $\frac{1}{2}$	17 $\frac{3}{4}$	21	5 + 4	14 st.	?	Viscount Powerscourt.
28 $\frac{1}{4}$	4 $\frac{1}{4}$	14 $\frac{1}{4}$	18	5 + 4	14 st. clean	?	Do.
26 $\frac{1}{2}$	4	21 $\frac{1}{2}$	21	4 + 4	...	?	Do.

**FORMOSAN SIKA (*Cervus taëvanus*).**

Nearly allied to the Japanese and Manchurian sikas, but distinctly spotted in winter, when the coat retains more or less of the rufous summer tinge. The dark line down the middle of the back is very strongly marked, there is a more distinct black bar above the white tail-patch, and the limbs are shorter, and the body proportionately longer. The height at the shoulder is about 2 feet 11 inches. This species is confined to the mountains of the island of Formosa.

Length.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
19 $\frac{3}{4}$	3 $\frac{3}{8}$	13	16 $\frac{3}{8}$	4 + 4	Island of Formosa . .	British Museum.
19	3 $\frac{1}{4}$	...	...	4 + 4	Do. . .	Duke of Bedford.



Head of Pekin Sika, from a specimen in the Museum at Woburn Abbey.

**PEKIN or DYBOWSKI'S SIKA (*Cervus hortulorum*).**

In addition to its larger size (at least 3 feet 7 inches at the shoulder), this species is distinguished from the Manchurian sika by the smaller size of the white tail-patch, which in fully adult individuals does not extend on to the sides of the buttocks, although it does so in younger animals. The head and neck are bluish gray, and in immature animals spots persist in the winter coat, although, except on the hind-quarters, they may disappear more or less completely at this season in fully adult bucks, whose coats become very long and shaggy, especially on the throat and neck. Hinds are more brightly coloured in winter than the stags, and retain more distinct spotting. This deer was first named by the late Consul Swinhoe from an immature buck and doe taken at the sack of the Summer Palace, Pekin, and was afterwards obtained in

the wild state in the Ussuri district of North-Eastern Manchuria, when it received the name of *C. dybowskii*.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
27	4 $\frac{1}{8}$	23 $\frac{1}{2}$	20	4+4	Manchuria . . .	Hon. Walter Rothschild.
26	3 $\frac{3}{4}$	18	15 $\frac{1}{2}$	4+4	Do. . . .	Edward P. Tennant.
24	4	22 $\frac{1}{2}$	19	4+4	Do. . . .	Hon. Walter Rothschild.
23 $\frac{1}{2}$	3 $\frac{1}{2}$	18 $\frac{1}{4}$	16 $\frac{1}{2}$	4+4	Do. . . .	Duke of Bedford.
15 $\frac{3}{8}$	3	20	...	4+4	Ussuri, South Man- churia	British Museum.



Skull and Antlers of Shou. From a specimen in the British Museum.



Head of Common Fallow Deer.

**FALLOW DEER** (*Cervus dama*).

Antlers normally without a bez, but with a trez tine, above which the beam is palmated, with numerous snags on the hinder edge. Coat spotted with white in summer (except in the black breed), with a black-bordered white area in the neighbourhood of the long tail. Height at shoulder about 3 feet; weight about 140 lbs. clean. The original distribution includes Greece, Spain, Portugal, Anatolia, Rhodes, Sardinia, Asia Minor, Northern Palestine, and North-Western Africa, but the species has been introduced into Great Britain and some other countries.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Spread inside.	Points.	Width of Palm.	Locality.	Owner.
<sup>1</sup> -31	5	...	...	30	7	?	Sir Victor Brooke's Collec- tion.
<sup>2</sup> -30	4 $\frac{3}{4}$	23 $\frac{1}{2}$	26 $\frac{1}{2}$	10 + 9	4 $\frac{1}{2}$	Drummond Castle, Perth	J. G. Millais.

<sup>1</sup> Recorded by J. G. Millais (*British Deer and their Horns*).

<sup>2</sup> Weight of antlers, 8 lbs. 1 oz. on skull, no lower jaw (Millais, *British Deer*).



FALLOW DEER (*Cervus dama*)—continued.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Spread inside.	Points.	Width of Palm.	Locality.	Owner.
-30	4½	22	37 outside	16 + 10	7	Drummond Castle, Perth	J. G. Millais.
-29½	5	17	28½	14 + 13	7½	Petworth Park, Sussex	Do.
<sup>1</sup> -28½	4	14½	26	10 + 11	6	Woburn . .	Duke of Bedford.
<sup>2</sup> 28½	4	(Span 34 outside)		19	6	Colebrooke .	Sir Victor Brooke's Collec- tion.
<sup>3</sup> 28	4	(26)		18	5	Do. .	Do.
<sup>4</sup> -27¾	5	20½	21½	13 + 7	5½	Do. . .	A. Basil Brooke.
27¾	4½	32½	25	11 + 10	...	Woburn .	Duke of Bedford.
27½	4	23	...	10 + 8	...	England .	J. Carr Saunders.
-27	...	...	...	...	...	Nr. Blair Castle .	Dowager Duchess of Atholl.
26⅞	3¾	12	17½	10 + 7	...	?	British Museum.
-26½	4½	23½	20½	9 + 7	5⅞	Perthshire .	A. Basil Brooke.
-26	5	20¾	23¾	10 + 10	4½	Tasmania .	T. W. H. Clarke.
-26	5½	20	22½	11 + 13	7	Ashton Park, Lan- cashire	J. Whitaker.
25¾	4½	26	...	8 + 8	5½	Ireland . .	Sir Victor Brooke's Collec- tion.
-25	4	24¾	25¾	11 + 10	5¼	Tasmania .	T. W. H. Clarke.
-25	4½	21½	24	11 + 10	7	England	Sir Edmund G. Loder, Bart.
23½	3¾	14	19½	10 + 9	4½	?	G. O. M. Herron.
-23	4½	15	18½	10 + 9	5	?	Dublin Museum.
21¾	4¾	...	...	11 + 10	5	Colebrooke, Ire- land	Sir Victor Brooke's Collec- tion.

<sup>1</sup> Weight dressed, 165 lbs.<sup>2</sup> Seven years old, as he fell 237½ lbs., 198 lbs. cleaned.<sup>3</sup> Seven years old, as he fell 224 lbs. (Millais, *British Deer*).<sup>4</sup> Seven years old.



Head of Mesopotamian Fallow Deer, from a specimen in the British Museum.

**MESOPOTAMIAN FALLOW DEER** (*Cervus mesopotamicus*).

Larger and brighter coloured than the common fallow deer, with the spots near the middle of the back tending to form longitudinal stripes, and less black on the tail. Antlers of a totally different type, being somewhat expanded at the origin of the trez tine (which is large, and situated some distance above the short brow tine), but at the summit only moderately flattened, and breaking up on the hinder border into several snags.

*Distribution.*—The mountains of Luristan in Mesopotamian Persia.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Spread inside.	Points.	Width of Palm.	Locality.	Owner.
-29	4 $\frac{1}{8}$	30 $\frac{1}{2}$	24 $\frac{1}{8}$	10 + 11	5 $\frac{1}{2}$	Asia Minor . .	F. E. Whittall.
-21 $\frac{1}{4}$	3 $\frac{5}{8}$	14 $\frac{1}{2}$	...	9 + 7	...	Do. . .	Paris Museum (Père A. David).
20 $\frac{1}{2}$	5	14	..	6 + 5	...	Luristan Mountains	Sir Edmund G. Loder, Bart.



Skull and Antlers of extinct Giant Fallow Deer (Irish Elk).

**EXTINCT GIANT FALLOW DEER (*Cervus giganteus*).**

(Commonly called "Irish Elk.")

A huge deer, probably standing at least 6 feet at the shoulder, with the antlers enormously expanded, and carrying several large tines on the front border, of which the one above the trez is the longest; the brow tine being often flattened and forked. In its typical form this magnificent deer occurs in the prehistoric deposits of Ireland, England, and probably some of the western districts of the Continent.

Spread Tip to Tip.		Length round inside of antler.		Length of both antlers across skull.		Circum- ference above burr.	Width of Palm.	Points.	Owner.
ft.	in.	ft.	in.	ft.	in.				
-11	3	7	5½	...		12½	19½	17	Mrs. Donaldson-Hudson.
-10	4½	6	9	13	10	12	20	...	Earl of Bessborough.
10	2	5	8½	...		9¾	19½	19	British Museum.
-10	2	...		...		...	...	...	Thomas Bate.
9	8	...		...		...	...	...	Hon. Walter Rothschild.
9	5	6	2	12	5	11	21½	11 + 11	Viscount Powerscourt.
9	5	6	0	12	10	13½	21½	15 + 13	Sir Edmund G. Loder, Bart.

**EXTINCT GIANT FALLOW DEER (*Cervus giganteus*)—continued.**

Spread Tip to Tip.	Length round inside of antler.	Length of both antlers across skull.	Circum- ference above burr.	Width of Palm.	Points.	Owner.
9 3	6 2	13 5	10	24	12+10	Duke of Westminster.
9 2	...	13 6	...	15 $\frac{1}{2}$	...	Mrs. Graham Lloyd.
-9 2	...	11 10	10 $\frac{1}{4}$	22 $\frac{1}{4}$	9+9	Dublin Museum.
-9 2	...	...	...	...	20	Thomas Bate.
8 11 $\frac{3}{4}$	6 1 $\frac{3}{8}$	...	8 $\frac{3}{4}$	17 $\frac{3}{4}$	10+13	Hon. Charles Ellis.
8 11	5 10	...	11 $\frac{1}{4}$	17	9+9	Viscount Powerscourt.
8 10	5 9	11 9 $\frac{1}{2}$	9 $\frac{1}{4}$	17	12+11	Duke of Westminster.
-8 10	...	12 10	...	13 $\frac{1}{2}$	...	Mrs. Graham Lloyd.
-8 9	...	..	...	18 $\frac{3}{4}$	9+8	H. J. Elwes.
8 7	5 9 $\frac{1}{2}$	..	10	20	12+12	Viscount Powerscourt.
7 6	5 3 $\frac{1}{2}$	...	8 $\frac{5}{8}$	...	10+11	Sir Victor Brooke's Collection.



Antlers of Indian Sambar.  
From a specimen in the British Museum.

**INDIAN SAMBAR (*Cervus unicolor*).**

The typical representative of the Rusine group of deer, in which the antlers are rounded and three-tined, both the bez and trez being wanting, and the summit of the beam simply forked. Height reaching to 5 feet 4 inches at the shoulder. Antlers large and rough, with the brow tine given off at an acute angle to the beam, and the two terminal tines of nearly equal length. Hair coarse and shaggy, uniformly dark umber-brown, with some chestnut on the buttocks, at all ages. Face-glands very large, and capable of being turned inside out. Ears large, and the tail relatively long and bushy. Young uniformly coloured. Weight about 600 lbs., when cleaned about

410 lbs. The wooded hilly districts of India and Ceylon form the habitat of the true sambar, which probably extends into Assam.

The largest, or rather longest, pair of antlers Mr. A. O. Hume ever met with were from the Central Provinces, and measured 48 inches along the curve inside (must have been nearly 50 inches on outside curve). Both brow tines were broken off. They were sent him by Mr. R. Blewitt.

Length on outside curve.	Circumference above brow tine.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
48	7	Single horn	dropped	3	Khandesh . .	R. H. Madan.
-46 $\frac{7}{8}$	...	49	...	3+3	Cent. Provinces	R. Wordsworth.
46 $\frac{1}{2}$	6 $\frac{3}{8}$	24 $\frac{1}{8}$	30 $\frac{1}{8}$	3+3	Do.	A. O. Hume, C.B.
-46 $\frac{1}{2}$	9 below brow tine	45	...	...	Gurhwal	R. M. Nash.
45 $\frac{1}{8}$	6 $\frac{5}{8}$	17 $\frac{3}{4}$	32 $\frac{1}{8}$	3+3	?	The late Dr. H. Falconer, British Museum.
45	7 $\frac{3}{8}$	22 $\frac{1}{2}$	33 $\frac{3}{4}$	3+3	Mayoghur, Cent. Provinces	Sir John Morris, K.C.S.I.
45	7 $\frac{1}{4}$	44 $\frac{7}{8}$	...	3+3	Western Ghats .	Major-Gen. Sir Arthur Ellis, K.C.V.O.
<sup>1</sup> -45	...	...	...	...	Cent. Provinces .	Bombay Natural History Society's Museum.
-45	9	...	...	...	Orissa .	H.H. The Maharaja of Travancore, G.C.S.I.
-45	8	Picked up by Dr. G. Jones	...	...	Cent. Provinces (?)	Heighway Jones.
44 $\frac{1}{8}$	7 $\frac{7}{8}$	44 $\frac{3}{8}$	45 $\frac{1}{4}$	3+3	Rangeer, Do.	Col. W. J. Morris.
-44	...	34	...	3+3	Central Do. .	J. D. Inverarity.
<sup>2</sup> -44	9	...	...	...	Rewa .	Major A. E. Ward.
44	6	9 $\frac{1}{4}$	24 $\frac{3}{8}$	3+3	Do.	Capt. C. F. Pinney.
44	6 $\frac{1}{8}$	19 $\frac{1}{4}$	31 $\frac{3}{4}$	3+3	Do.	H. E. M. Davies.
43 $\frac{3}{8}$	5 $\frac{3}{8}$	Single horn	...	3+3	Do.	Hume Collection, British Museum.
43 $\frac{1}{2}$	5 $\frac{1}{4}$	17	28	3+3	Do.	Sir E. P. Bates.
43 $\frac{1}{2}$	6 $\frac{3}{4}$	25 $\frac{1}{4}$	34	3+3	Cent. Provinces	Viscount Powerscourt.
43 $\frac{3}{8}$	6 $\frac{1}{4}$	20 $\frac{3}{8}$	29 $\frac{1}{8}$	3+3	Do.	Sir Robert Harvey, Bart.
-43 $\frac{1}{4}$	10	...	...	3+3	Do.	Capt. C. Hutton Dowson.
-43	10 $\frac{1}{2}$	...	...	...	Cuttack	Indian Museum.

<sup>1</sup> This is only the measurement of a portion of a Sambar antler, and was recorded in the *Journal of the Bombay Natural History Society*, iii. p. 228. The animal was shot by Mr. R. Gilbert in the Central Provinces, but got away minus this piece of his antler.

<sup>2</sup> Height at shoulder, 35 $\frac{1}{4}$  inches.

INDIAN SAMBAR (*Cervus unicolor*)—*continued*.

Length on outside curve.	Circum- ference above brow line.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
43	7½	35½	38	3+3	Gwalior . . .	Sir Greville Smyth, Bart.
43	6	24½	30	3+3	Khandesh . . .	A. Cumine.
-43	9½	26	23	3+3	Cent. Provinces . .	Capt. J. H. Gwynne.
42¾	5¾	26	32¼	3+3	Do. . .	A. H. Pollen.
42½	6¼	15	27¾	4+4	Ghats of Simrol . .	Col. J. Evans, British Museum.
-42	6¼	Single antler	...	...	? . . .	Sir Edmund G. Loder, Bart.
42	6	26¼	35½	3+3	Khandesh . . .	A. Cumine.
41¾	6¼	33¾	35¼	3+3	Western Ghats . .	Major-Gen. Sir Arthur Ellis, K.C.V.O.
41¾	7	28¼	34¾	3+3	? . . .	Hon. Walter Rothschild.
41¾	7½	31¾	36¾	4+3	Nepal . . .	The late B. H. Hodgson, British Museum.
41½	6¼	30½	36½	4+4	Cent. Provinces . .	P. Jay.
41	6¾	18½	29	3+3	Do. . . .	Duke of Bedford.
<sup>1</sup> -41	8½	...	...	3+3	N. Gujerat . . .	S. C. Law.
40¾	6	22	27½	3+3	? . . .	Sir Edmund G. Loder, Bart.
40½	7½	24½	...	3+3	? . . .	Major James Grant.
40½	5¾	33	37¼	3+3	? . . .	Hume Collection, British Museum.
40¼	6¼	28¾	32	3+3	Nilgiris . . .	Sir Victor Brooke's Collection.
-40	...	20½	...	3+3	Asirghur . . .	J. D. Inverarity.
40	6	31½	33¾	4+4	Cent. Provinces . .	H. P. Whitney.
40	5¾	32¼	36	3+3	Ghats of Simrol . .	Col. J. Evans, British Museum.
-39½	8	26½	...	...	Nimar . . .	Captain J. N. MacLeod.
39¼	6	16½	20½	2+2	Nepal . . .	H.R.H. the Duke of Saxe- Coburg and Gotha.
-39	6	18	28	...	Satpura Range . .	Col. J. Biddulph.
-39	...	28¼	30¼	3+3	Asirghur . . .	J. D. Inverarity.
38½	6	26	31½	3+3	? . . .	Viscount Powerscourt.
-38½	5¼	38	29½	3+3	Girnar Hill, Kathiawar	Lieut.-Col. L. L. Fenton.
38½	6¾	23¼	28¾	3+3	? . . .	Sir Robert Harvey, Bart.
38½	6¾	30¾	35	3+3	Nilgiris . . .	Sir Victor Brooke's Collec- tion.

<sup>1</sup> Malformed.

INDIAN SAMBAR (*Cervus unicolor*)—*continued*.

Length on outside curve.	Circum- ference above brow line.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
<sup>1</sup> -38	...	32 $\frac{3}{8}$	...	...	Mandla District, Cent. Provinces	Capt. B. H. Boucher.
-38	6 $\frac{1}{2}$	...	...	3+3	Cent. Provinces . .	H. Lennard.
38	6 $\frac{1}{2}$	29 $\frac{3}{4}$	41 $\frac{3}{8}$	3+3	Chanda District, Cent. Provinces	Sir John Morris, K.C.S.I.
38	5 $\frac{3}{4}$	28	28	3+3	?	Capt. E. H. R. Hibbert.
37 $\frac{3}{4}$	6	29 $\frac{1}{4}$	31 $\frac{3}{4}$	3+3	Cent. Provinces .	Lieut.-Col. M. Cust.
37 $\frac{1}{2}$	6 $\frac{3}{4}$	21 $\frac{3}{8}$	25 $\frac{3}{8}$	4+3	Do. . .	Major C. S. Cumberland.
37 $\frac{1}{2}$	5 $\frac{1}{2}$	43	31	3+3	Chanda District, Cent. Provinces	L. Gisborne Smith.
37 $\frac{1}{2}$	5 $\frac{7}{8}$	29	31 $\frac{1}{2}$	3+3	Do. . .	C. D. Twopeny.
37 $\frac{1}{2}$	7 $\frac{1}{2}$	23	29	3+3	Do. . .	Col. M. M. Bowie.
37 $\frac{1}{2}$	5 $\frac{3}{4}$	23 $\frac{1}{2}$	31	3+3	Do. . .	C. F. Egerton.
37 $\frac{3}{8}$	5 $\frac{1}{2}$	19	23 $\frac{3}{4}$	3+3	Nimar, Cent. Provinces	Lieut.-Col. H. Wade-Dalton.
37 $\frac{1}{4}$	5 $\frac{3}{8}$	19 $\frac{5}{8}$	30 $\frac{3}{4}$	3+3	Central Provinces .	Major C. S. Cumberland.
37	5 $\frac{1}{2}$	20 $\frac{1}{4}$	28 $\frac{1}{2}$	3+3	?	M. Loam.
37	6 $\frac{1}{8}$	27 $\frac{1}{8}$	28 $\frac{3}{4}$	3+3	?	H. C. V. Hunter.
-37	6 $\frac{7}{10}$	21 $\frac{1}{4}$	24	3+3	Mount Aboo .	Viscount Edmond de Poncins.
37	9	13	31	3+3	Mounar Valley . .	A. H. Sharp.
36 $\frac{3}{4}$	6 $\frac{1}{4}$	23 $\frac{1}{2}$	22	3+3	Rajputana . .	Col. J. Biddulph.
36 $\frac{1}{2}$	5 $\frac{3}{4}$	24 $\frac{3}{4}$	27	3+3	Benares . . .	Sir Comer Petheram.
36 $\frac{1}{2}$	5	23 $\frac{3}{4}$	24 $\frac{1}{2}$	3+3	?	A. M. Caccia.
36 $\frac{1}{2}$	5 $\frac{3}{8}$	29	34	3+3	Nimar, Cent. Provinces	Lieut.-Col. H. Wade-Dalton.
-36	7	19	...	3+3	?	Count J. Potocki.

## Ceylon Specimens.

32 $\frac{1}{2}$	6 $\frac{1}{4}$	24	26 $\frac{1}{4}$	3+3	Ceylon .	A. R. Hay.
31 $\frac{1}{2}$	5	20	17	4+3	Do. .	Surgeon-Major G. E. Hale, D.S.O.
-30	8?	21 $\frac{1}{2}$	19 $\frac{5}{8}$	3+3	Do. .	J. Ryan.
29	4 $\frac{1}{2}$	25	22 $\frac{1}{4}$	3+3	Do. . .	Earl Cairns.
27 $\frac{1}{4}$	4 $\frac{1}{4}$	16 $\frac{3}{4}$	20	3+3	Do.	A. M. Naylor.
-20 $\frac{3}{4}$	5 $\frac{5}{8}$	15	15	3+3	Do. . . .	Dr. Percy Rendall.

<sup>1</sup> Height at shoulder, 52 inches.





Frontlet and Antlers of Malayan Sambar.  
Drawn from a Burmese specimen in the British Museum.

**MALAYAN SAMBAR or EQUINE DEER** (*Cervus unicolor equinus*).

This local race is nearly as large as the Indian sambar, but the antlers are generally shorter and thicker, with the hinder or inner tine of the terminal fork much shorter than the front one, and arising as a spur from the inner hind margin of the beam, of which the front tine forms the direct continuation; the brow tine also generally longer. General colour of coat of adult darker, usually a light ring round the eyes, the ears smaller, often with a white margin, and the tail very bushy. Young spotted. The distributional area extends from Assam and Cachar through Burma and the Malay Peninsula to Siam, Hainan, Borneo, and perhaps Sumatra.

**MALAYAN SAMBAR or EQUINE DEER (*Cervus unicolor equinus*)—**  
*continued.*

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
30 $\frac{3}{8}$	6 $\frac{1}{2}$	17 $\frac{1}{4}$	19 $\frac{3}{8}$	7+7	Borneo .	Sir Edmund G. Loder, Bart.
-30 $\frac{1}{2}$	5 $\frac{1}{8}$	27 $\frac{3}{4}$	<sup>1</sup> 30	3+3	Burma	Vet.-Capt. G. H. Evans.
30 $\frac{1}{8}$	4 $\frac{3}{8}$	20 $\frac{3}{4}$	21 $\frac{1}{4}$	3+3	Do.	British Museum.
29 $\frac{3}{8}$	6	16 $\frac{5}{8}$	20 $\frac{3}{4}$	3+3	Garro Hills, Assam .	Hume Collection, British Museum.
-29 $\frac{1}{4}$	5 $\frac{1}{2}$	22 $\frac{1}{2}$	<sup>1</sup> 23 $\frac{1}{2}$	3+3	Burma .	Vet.-Capt. G. H. Evans.
-28 $\frac{1}{2}$	5	26 $\frac{1}{2}$	<sup>1</sup> 29 $\frac{1}{2}$	3+3	Do. . .	Do.
26 $\frac{3}{4}$	6	12	13.3	3+3	Garro Hills, Assam .	Hume Collection, British Museum.
26 $\frac{1}{2}$	6 $\frac{3}{4}$	11	...	3+3	Borneo . .	Sir Edmund G. Loder, Bart.
-26 $\frac{1}{2}$	6 $\frac{3}{4}$	24 $\frac{1}{2}$	...	3+3	Perak . .	Perak Museum.
23 $\frac{1}{8}$	7	15 $\frac{3}{8}$	...	3+3	Borneo	H. B. Low, British Museum.
19 $\frac{5}{8}$	4 $\frac{1}{4}$	16 $\frac{7}{8}$	16 $\frac{7}{8}$	4+3	Assam . .	Hume Collection, British Museum.
16 $\frac{1}{4}$	4 $\frac{1}{2}$	5 $\frac{5}{8}$	...	3+2	Borneo .	W. B. Pryer, British Museum.

<sup>1</sup> Outside.

**FORMOSAN SAMBAR (*Cervus unicolor swinhoei*).**

This race is very closely related to the preceding, from which it is distinguished by its shorter head, concave profile, longer limbs, and certain differences in colour; the lower part of the legs being brownish or whitish yellow, and the bushy tail black all round. It is confined to the island of Formosa.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
19 $\frac{3}{4}$	...	9	3+3	Island of Formosa . .	British Museum.
16 $\frac{1}{8}$	3 $\frac{5}{8}$	16	3+3	Do. . .	Do.
13 $\frac{5}{8}$	4 $\frac{3}{4}$	13 $\frac{1}{8}$	4+4	Do. . . .	Do.
5 $\frac{7}{8}$	2 $\frac{1}{8}$	6 $\frac{1}{4}$	3+2	Do. . .	Do.

**LUZON SAMBAR** (*Cervus unicolor philippinus*).

Nearly allied to the two last, the height at the shoulder being about 28 inches, the build stout and massive, with the hind-quarters specially elevated, and the form that of a small Malayan sambar. On the head is a blackish streak starting from over each eye to form a line down the middle of the face separated by a band of pale fawn from a moustache-like dark mark in the muzzle.

*Distribution*.—The island of Luzon, in the Philippines; introduced into the Marianne islands, and described as a separate species under the name of *C. mariannus*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
21	4 $\frac{3}{4}$	5 $\frac{1}{2}$	3+3	Island of Luzon . .	Sir Edmund G. Loder, Bart.
19 $\frac{3}{8}$	5 $\frac{1}{2}$	7 $\frac{1}{2}$	4+4	Do. . .	Capt. Belcher, British Museum.
18 $\frac{7}{8}$	5 $\frac{1}{2}$	9 $\frac{3}{4}$	3+5	Do. . .	Do.
18 $\frac{3}{8}$	5 $\frac{3}{8}$	14 $\frac{3}{4}$	4+3	Do. . .	Do.
18	4 $\frac{5}{8}$	13	4+4	Do. . .	Do.
16	4	10 $\frac{1}{2}$	3+3	Do. . .	Sir Edmund G. Loder, Bart.
15 $\frac{1}{8}$	5 $\frac{1}{2}$	11 $\frac{1}{4}$	3+3	Do. . .	Capt. Belcher, British Museum.

**BASILAN SAMBAR** (*Cervus unicolor nigricans*).

Length on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
13 $\frac{1}{2}$	4 $\frac{3}{8}$	12 $\frac{1}{8}$	3+3	Basilan Island . .	A. H. Everett, British Museum.
13 $\frac{1}{8}$	4 $\frac{1}{2}$	11 $\frac{5}{8}$	3+3	Do. . .	Do.

**SZECHUAN SAMBAR** (*Cervus unicolor dejeani*).

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
30 $\frac{3}{8}$	5 $\frac{1}{2}$	15 $\frac{3}{8}$	18 $\frac{1}{2}$	3+3	Ta-tsien-lou Szechuan	Paris Museum (type specimen).



Skull and Antlers of Javan Rusa.  
From a specimen in the British Museum.

**JAVAN RUSA (*Cervus hippelaphus*).**

General form, coat, and colour sambar-like ; but the ears smaller the tail thin, the hairs on the back banded with coloured rings, and the under parts, chin, and inner sides of buttocks whitish. Antlers comparatively slender and only moderately rough, with the brow tine medium or short, and making a large acute angle with the beam ; the hinder or inner tine of the terminal fork much longer than the front or outer one, and forming the continuation of the beam, from the

front or front outer surface of which the front tine arises as an off-shoot; the two antlers enclosing a lyrate space. Young, uniformly coloured. There are two races of this species—one the Javan rusa (*C. hippelaphus typicus*) of the approximate size of a red deer, and the other the Moluccan rusa (*C. hippelaphus moluccensis*), from Celebes and the Moluccas, said to be smaller, and without a distinct mane on the neck or tuft to the tail.

Length on outside curve.	Circumference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
-36	...	11½	...	3+3	Mauritius (introduced)	V.-Admiral Sir William Kennedy.
35½	4½	22¾	...	3+3	Java	Sir Victor Brooke's Collection.
34½	4½	17¼	22¼	3+3	Do.	Commander C. Keppel, C.B., R.N.
<sup>1</sup> 34	...	...	...	...	Rodriguez (introduced)	V.-Admiral Sir William Kennedy.
33½	4½	19½	25	3+3	Java	Commander C. Keppel, C.B., R.N.
33	4½	25½	...	3+3	Do.	Duke of Bedford.
32	4½	19	16¼	3+3	Do.	The late H. J. H. Platt.
28½	4½	11½	12½	3+3	Do.	Sir Edmund G. Loder, Bart.

<sup>1</sup> Weight 19 stone 3 lbs.

### MOLUCCAN RUSA (*Cervus hippelaphus moluccensis*).

See Javan rusa above.

Length on outside curve.	Circumference.	Tip to Tip.	Points.	Locality.	Owner.
36½	4½	18½	3+3	?	Sir Edmund G. Loder, Bart.
27½	4½	14½	3+3	?	Duke of Bedford.
14½	3½	...	3+3	?	Do.
8½	4	5½	...	Batchian	A. R. Wallace, British Museum.
6½	3½	5½	...	?	British Museum.

### BAVIAN DEER (*Cervus kuhli*).

A small deer allied to the Javan rusa (*C. hippelaphus*), standing about 27 inches at the shoulder, of light build, and of a uniform brown colour, without a dark stripe down the back.

*Distribution.*—The Bavian Islands, between Borneo and Java.

Length on outside curve.	Circumference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
9½	2½	10½	10½	3+3	Bavian Islands	British Museum.



Head of Male Hog-Deer.

**HOG-DEER or PARA (*Cervus porcinus*).**

Allied to the Bavian deer, but the antlers larger, the build longer and lower, and the summer coat of the adult, as well as that of the young, spotted with yellowish white. General colour in winter rufous or yellowish brown, somewhat speckled above, and much darker beneath; in summer, upper parts paler and more or less spotted. Antlers on long pedicles, with the hinder tine of the terminal fork the shorter. Height at shoulder from about 25 to 29 inches. Weight about 90 to 100 lbs. The largest pair ever seen by Mr. A. O. Hume belonged to a specimen he shot in the Ganges Khadir, near Meerut. It measured 20 along the beam inside, and had a mid-beam girth of 3.5. It was destroyed in the Mutiny, the house in which it was hung, with several hundred others, having been burnt down.

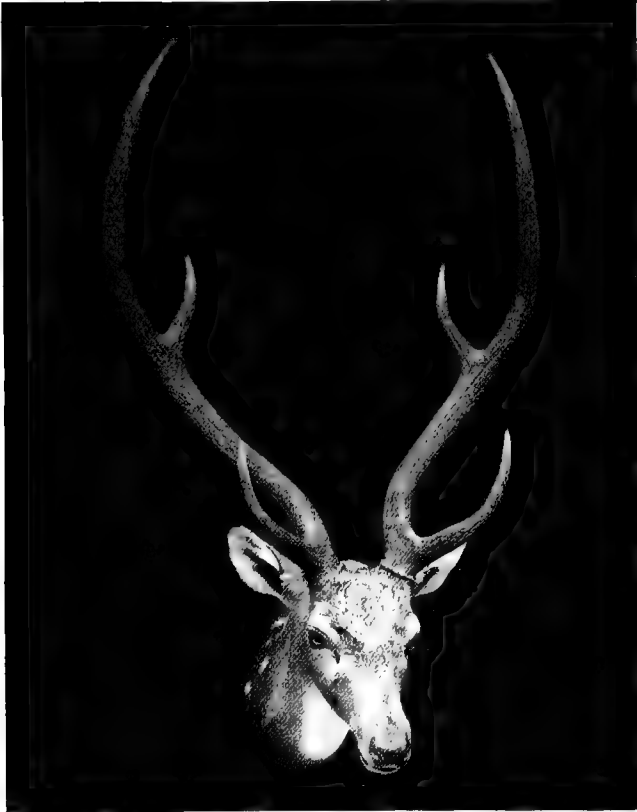
*Distribution*.—India, throughout the Indo-Gangetic plain from Sind and the Punjab to Assam, thence through Sylhet to Burma and Tenasserim.

Length on outside curve.	Circum- ference above brow tine.	Tip to Tip.	Locality.	Owner.
-23 $\frac{1}{4}$	3 $\frac{7}{8}$	12 $\frac{7}{8}$	Burma . . . .	Vet.-Capt. G. H. Evans.
-21 $\frac{3}{4}$	3 $\frac{1}{2}$	7 $\frac{1}{4}$	Do. . . . .	Do.
-21	3 $\frac{1}{2}$	18 $\frac{3}{4}$	Do. . . . .	Do.

HOG-DEER or PARA (*Cervus porcinus*)—*continued*.

Length on outside curve.	Circum- ference above brow line.	Tip to Tip.	Locality.	Owner.
-21	3 $\frac{1}{4}$	15 $\frac{1}{4}$	Pegu . . .	Major-Gen. E. M. Norie.
-20 $\frac{1}{2}$	3 $\frac{1}{4}$	12 $\frac{1}{2}$	Burma . . .	Vet.-Capt. G. H. Evans.
-20 $\frac{3}{8}$	3 $\frac{1}{8}$	...	Nepal . . .	Bombay Natural History Society's Museum.
-20 $\frac{1}{4}$	4 $\frac{1}{2}$	17 $\frac{1}{4}$	?	J. Whitaker.
-20 $\frac{1}{8}$	3	9 $\frac{1}{2}$	N.W. Provinces .	J. Nugent.
-20	...	...	Burma . . .	The late Capt. R. C. Beavan, Indian Museum.
-19 $\frac{5}{8}$	3 $\frac{1}{8}$	16	Meerut, N.W.P. .	W. Q. Winwood.
19 $\frac{1}{2}$	3 $\frac{1}{8}$	13 $\frac{5}{8}$	Dudla Swamp, N.W. Provinces	Capt. W. E. Stobart.
-19 $\frac{1}{2}$	3 $\frac{3}{8}$	...	Nepal . . .	Bombay Natural History Society's Museum.
-19 $\frac{3}{8}$	...	...	Ganges Khadir .	H. S. King.
19 $\frac{1}{4}$	3 $\frac{1}{8}$	9 $\frac{1}{2}$	Do. . .	A. O. Hume, C.B.
19 $\frac{5}{8}$	3 $\frac{1}{4}$	16 $\frac{1}{2}$	Burma . . .	Sir Victor Brooke's Collection.
19 $\frac{1}{8}$	3 $\frac{3}{8}$	18 $\frac{3}{4}$	?	H. C. V. Hunter.
-19	4 $\frac{1}{4}$	5 $\frac{1}{16}$	Upper Burma .	C. W. A. Bruce.
-18 $\frac{3}{8}$	4 $\frac{7}{16}$	15	Do. . .	Do.
<sup>1</sup> -18	6 $\frac{1}{2}$	19	Ganges Khadir .	Col. R. Pole-Carew, C.B.
-18	...	...	?	W. Gillman.
17 $\frac{3}{4}$	3 $\frac{1}{2}$	9 $\frac{1}{4}$	Nepal . . .	The late B. H. Hodgson, British Museum.
-17 $\frac{1}{2}$	...	...	Ganges Khadir .	Major F. D. V. Wing.
17 $\frac{1}{8}$	...	9 $\frac{1}{4}$	India . . .	J. Carr Saunders.
-17	3 $\frac{1}{8}$	...	Naini Tal Terai .	Major-General Alexander A. A. Kinloch.
16 $\frac{7}{8}$	3	10 $\frac{3}{8}$	?	British Museum.
-16 $\frac{1}{2}$	3 $\frac{3}{8}$	14 $\frac{1}{8}$	Nepal . . .	A. E. Leatham.
16 $\frac{1}{8}$	2 $\frac{7}{8}$	8 $\frac{5}{8}$	India . . .	The late Gen. Hardwicke, British Museum.
15 $\frac{1}{2}$	2 $\frac{3}{8}$	7 $\frac{1}{4}$	Do . . .	Sir Edmund G. Loder, Bart.
15	2 $\frac{1}{2}$	...	Laos States, Cam- bodia	A. Waley.

<sup>1</sup> Ten points.



Head of Chital, shot by Lieut.-Col. F. H. Whitby.

**CHITAL or AXIS** (*Cervus axis*).

This beautiful species is distinguished from all the other members of the Rusine group, except the Philippine spotted deer (*C. alfredi*), by the body being profusely spotted with white at all seasons and all ages; the general colour of the upper parts being light rufous fawn, with a dark stripe from the nape to the tip of the tail and a black band on the muzzle. Height at shoulder from 36 to 38 inches; live-weight estimated at about 250 lbs. Antlers supported on short pedicles, long, slender, and moderately rough; the brow tine making nearly a right angle with the beam, and the front tine of the terminal fork, which forms the continuation of the beam, much the longer.

*Distribution.*—India and Ceylon.



CHITAL or AXIS (*Cervus axis*)—*continued*.

Length on outside curve.	Circumfer- ence above the first point.	Tip to Tip.	Points.	Locality.	Owner.
-38½	4½	19½	3+3	Asirgarh Jungle, Central Provinces	Lieut.-Col. M. Cust.
38	4½	18	3+3	East Berar . .	Lieut.-Col. F. H. Whitby. See Illustration.
-38	...	...	...	Narbada Valley	The late Capt. J. Forsyth.
37½	3½	19	3+3	Siwalik Hills . .	B. R. M. Glossop.
37½	4½	24½	4+4	Bassim, C.P. .	A. O. Hume, C.B.
37½	4	24½	3+3	Déhra Dún .	Do.
37½	4½	16½	4+5	?	Sir Victor Brooke's Collection.
36½	4½	19½	4+4	?	The late W. C. Oswell.
36½	4½	25	4+3	Berar .	C. H. Seely.
-36½	4½	15½	4+3	Nepal . . .	A. E. Leatham.
-36½	5½	19½	3+3	Central Provinces .	Capt. M. McNeill.
-36½	...	16½	4+4	Do. . .	Capt. J. H. Gwynne.
36	4½	25½	3+4	?	British Museum.
-36	5	15	4+3	Mysore . .	Vet.-Capt. G. H. Evans.
-36	4½	21	4+3	?	Major James Grant.
35½	4½	18½	4+4	?	Sir Edmund G. Loder, Bart.
35½	4	12½	5+5	?	G. W. Hatch.
35½	4½	22½	3+3	Western Ghats .	Major-Gen. Sir Arthur Ellis, K.C.V.O.
-35½	4	21	4+4	?	James J. Harrison.
-35	4½	...	...	N. Kanara . .	Bombay Natural History Society's Museum.
35	4½	20½	4+3	Kota, Rajputana .	Major H. C. Morland.
-35	...	16½	...	Mandla, Central Provinces	Capt. B. H. Boucher.
35	4	24½	3+3	Nepal . . .	Capt. G. Roos Keppel.
-35	3½	18	...	?	W. S. Murray.
-34½	5½	12½	4+4	N.W. Provinces .	Surgeon-Capt. E. M'K. Williams.
34½	4½	17½	...	?	H.R.H. the Duke of Saxe- Coburg and Gotha.
-34½	...	...	...	Mirzapore . .	Indian Museum.
-34½	...	22½	3+3	Tapti Valley . .	J. D. Inverarity.
-34½	3½	...	...	North Kanara .	Lieut.-Col. L. L. Fenton.

CHITAL or AXIS (*Cervus axis*)—*continued*.

Length on outside curve.	Circumference above the first point.	Tip to Tip.	Points.	Locality.	Owner.
34	$4\frac{3}{4}$	$16\frac{1}{2}$	3 + 3	?	Col. R. Pole Carew, C.B.
-34	...	...	...	?	Otho Shaw.
-34	...	29	3 + 3	Narbada Valley	J. D. Inverarity.
34	$3\frac{1}{2}$	24	4 + 3	?	W. H. Cobb.
$33\frac{1}{2}$	$4\frac{5}{8}$	$16\frac{1}{2}$	3 + 3	Central Provinces	H. Douglas Taylor.
$33\frac{1}{2}$	$4\frac{3}{8}$	$23\frac{5}{8}$	4 + 5	Do.	Major C. S. Cumberland.
$33\frac{1}{2}$	...	..	...	Ahree District, Central Provinces	Colonel F. C. Lister-Kay.
$33\frac{1}{2}$	$4\frac{5}{8}$	$19\frac{5}{8}$	3 + 3	?	J. Carr Saunders.
- $33\frac{1}{2}$	...	18	3 + 3	Central Provinces	H. St. Lennard.
$33\frac{1}{2}$	$3\frac{3}{4}$	$18\frac{1}{4}$	3 + 3	?	Col. Scott Chisholme.
$33\frac{1}{4}$	$3\frac{7}{8}$	13	2 + 3	Yeddacurra	Sir Victor Brooke's Collection.
$33\frac{1}{8}$	$3\frac{7}{8}$	$14\frac{3}{8}$	3 + 4	?	Sir James Anderson, Bart.
-33	$4\frac{1}{4}$	$16\frac{1}{2}$	5 + 4	?	Dublin Museum.
-33	$6\frac{1}{8}$	22	4 + 4	Déhra Dún	Major-General Alexander A. A. Kinloch.
33	$3\frac{3}{4}$	$19\frac{3}{4}$	3 + 3	N.W. Provinces	Capt. Chambers Didham.
$32\frac{7}{8}$	$4\frac{3}{8}$	$21\frac{1}{2}$	3 + 3	?	Hon. Walter Rothschild.
$32\frac{3}{4}$	$3\frac{7}{8}$	14	3 + 3	?	Sir James Anderson, Bart.
$32\frac{1}{2}$	$4\frac{1}{4}$	$23\frac{3}{8}$	5 + 4	South India	Sir Victor Brooke's Collection.
- $32\frac{1}{4}$	$4\frac{1}{4}$	$14\frac{1}{2}$	5 + 4	North Oudh	Major J. W. M. Cotton.
32	4	$16\frac{1}{2}$	4 + 4	Jabalpur	A. Leslie Renton.
- $31\frac{1}{2}$	$3\frac{3}{4}$	$17\frac{1}{2}$	3 + 3	Ceylon	Count Scheibler.
$31\frac{1}{2}$	3	$10\frac{1}{2}$	3 + 3	Do.	A. R. Hay.
$30\frac{3}{4}$	$3\frac{1}{4}$	$20\frac{1}{2}$	3 + 3	Do.	Washington Singer.
30	$3\frac{1}{2}$	15	4 + 3	Do.	Lieut.-Col. H. Wade-Dalton.
$29\frac{7}{8}$	$4\frac{1}{8}$	$20\frac{1}{4}$	3 + 3	Do.	British Museum.
$28\frac{3}{4}$	$3\frac{1}{4}$	$11\frac{1}{2}$	3 + 3	Do.	Capt. G. O. Bigge.
$28\frac{1}{4}$	$4\frac{1}{2}$	$17\frac{1}{2}$	3 + 3	Do.	Surgeon-Major G. E. Hale, D.S.O.
27	$3\frac{1}{2}$	$8\frac{1}{2}$	3 + 3	Do.	Capt. Lewis Jones.
- $25\frac{1}{2}$	3	18	3 + 3	Do.	Dr. Percy Rendall.



Side view of Antlers of Swamp-Deer. From a specimen in the British Museum.

**SWAMP-DEER** (*Cervus duvauceli*).

This species belongs to the Rucervine group, in which the antlers resemble those of the Rusine section in the absence of the bez and trez tines, but have the beam regularly forked, and each branch again dividing, so that there are at least four tines. In the swamp-deer the antlers are smooth and flattened, with a long brow tine rising almost at right angles to the beam, which is undivided for about half the total length of the antler, and then splits into a fork, each branch of which is usually simply forked, but sometimes divided in a more complicated manner. General colour bright rufous brown, often speckled near the back. Height at shoulder from 3 feet 8 inches to 3 feet 10 inches; weight about 51 stone 3 lbs.

*Distribution*.—India, exclusive of Ceylon.

SWAMP-DEER (*Cervus duvauceli*)—*continued.*

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
4I	6½	35½	38	8+5	Central Provinces	Capt. W. W. Hancock.
4I	5½	(one antler) broken		6+6	Do.	Do.
39½	5	35½	37½	5+6	Do.	Major C. S. Cumberland.
38½	5½	(shed antlers)		6+5	Do.	C. F. Egerton.
-38	...	43	...	6+6	Do.	J. D. Inverarity.
-38	...	...	...	6+6	Do.	Capt. B. H. Boucher.
37¾	5¼	23½	28½	7+6	?	Sir Edmund G. Loder, Bart.
36½	5	...	20 (outside)	23	Mavella District	Measured by Major A. E. Ward.
36	5	29¾	33¾	6+5	Nepal	The late B. H. Hodgson, British Museum.
-36	...	29	...	6+6	Do.	J. D. Inverarity.
-35½	...	...	...	...	Chutia Nagpur	Indian Museum.
35¾	4¾	27	29¾	...	?	Sir Victor Brooke's Collection.
35¼	5¾	22¼	...	7+6	Nepal	H. C. V. Hunter.
-34¾	...	33	...	12+8	Mymensing	F. B. Simson.
-34½	5½	24¾	28¾	6+5	Nepal	A. E. Leatham.
34½	4¾	10¾	28	9+6	Mandla, Cent. Provinces	Major A. G. W. Malet.
33½	4¾	28½	32¼	5+5	N.W. Provinces	Capt. Chambers Didham.
32¾	5¼	22¾	26¾	6+5	Gowhatti, Assam	A. O. Hume, C.B.
32½	5	33¼	35	6+6	?	Sir Robert Harvey, Bart.
32¾	5	27½	...	7+6	Kuch Behar	Major Henry Streatfeild.
32½	4¼	32	33½	5+5	Central Provinces	Capt. E. D. White.
32½	5½	19½	24½	7+7	Nepal	H.R.H. the Duke of Saxe- Coburg and Gotha.
32	4	29	19	4+4	?	Sir H. D. Tichborne, Bart.
3I	4¾	...	...	...	Herkapur	Capt. J. H. Purvis.
-30½	5	31½	...	7+6	Raipur, Central Provinces	Capt. M. M'Neill.
30½	5¾	28½	32¾	8+8	Central Provinces	H. Douglas Taylor.
30½	4¼	24¾	27	5+5	?	A. M. Caccia.



Antlers of Schomburgk's Deer. From a specimen in the British Museum.

### SCHOMBURGK'S DEER (*Cervus schomburgki*).

Allied to the preceding, but the antlers smooth, rounded, and more complex ; the brow tine very long, frequently forked, and arising nearly at right angles to the beam, which is very short, compressed, and regularly forked, with each of the main branches about equally developed and again forking in a similar manner to terminate in long cylindrical tines. General colour uniform dark brown. Height at shoulder about 3 feet 5 inches.

*Distribution.*—The northern districts of Siam.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
-32 $\frac{1}{8}$	5 $\frac{1}{8}$	...	...	12 + 11	Siam . . .	Sir Edmund G. Loder, Bart.
30 $\frac{1}{8}$	5	15 $\frac{3}{8}$	33	10 + 10	Do. . . .	British Museum.
29 $\frac{7}{8}$	5 $\frac{1}{8}$	23 $\frac{3}{8}$	26 $\frac{7}{8}$	9 + 8	Do. . . .	Do.
29 $\frac{1}{2}$	4 $\frac{3}{4}$	28 $\frac{3}{8}$	31 $\frac{3}{8}$	10 + 11	Do. . . .	Do.
29 $\frac{1}{2}$	6	19 $\frac{1}{2}$	27	6 + 7	Do. . . .	J. Carr Saunders.
28 $\frac{1}{2}$	5 $\frac{1}{4}$	11	20 $\frac{3}{8}$	11 + 9	?	Sir Victor Brooke's Collection.
-28.5	5.25	9.5	28.5	10 + 9	Siam . . .	Indian Museum.
27 $\frac{7}{8}$	5 $\frac{3}{8}$	14	24 $\frac{1}{2}$	9 + 8	Do. . . .	British Museum.
27 $\frac{3}{4}$	4 $\frac{3}{8}$	18 $\frac{1}{2}$	24 $\frac{3}{8}$	8 + 7	Do. . . .	Do.



Skull and Antlers of Thameng. From a Burmese specimen.

### THAMENG or ELD'S DEER (*Cervus eldi*).

Although belonging to the same group as the two preceding species, this deer is readily distinguished by the peculiar form of the antlers. These are rounded and rough, with a long curved brow tine, forming a continuation of the curve of the beam, which is set at right angles to the pedicle; the beam unbranched for some distance, much curved, and finally forked, with the outer prong more subdivided than the inner. Height at shoulder about 3 feet 9 inches; weight from 210 lbs. to 245 lbs. There are two races of this species. First, the Burmese thameng (*C. eldi typicus*), ranging from Manipur through Burma to the Malay Peninsula, in which the antlers are rounded throughout, and the coat is uniformly umber-brown. And, secondly, the Siamese thameng (*C. eldi platyceros*), from Siam and Hainan, in which the tips of the antlers are flattened with a number of small snags, and the coat is redder, with yellowish spots.

Length on outside curve, not including brow tine.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Length of brow tine.	Locality.	Owner.
42	5	29	24	3 + 2	...	Burma . .	A. H. Collins.
41	5½	27½	36	5 + 5	...	Upper Burma .	Surgeon-Major O. E. P. Lloyd.
1 39½	5	31½	36½	20 (small points)	15¾	Siam . .	Sir Edmund G. Loder, Bart.
38½	6½	25½	30½	16 + 19	...	?	British Museum.

<sup>1</sup> Measured on front of antler from highest tip to tip of frontal tine 56½ inches.

THAMENG or ELD'S DEER (*Cervus eldi*)—*continued*.

Length on outside curve, not including brow tine.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Length of brow tine.	Locality.	Owner.
38 $\frac{1}{2}$	6 $\frac{1}{2}$	24	30 $\frac{3}{4}$	6+5	...	Manipur . .	A. O. Hume, C.B.
38	4 $\frac{5}{8}$	29 $\frac{1}{2}$	36 $\frac{3}{4}$	5+5	...	Pegu . .	G. R. Radmore.
37 $\frac{1}{2}$	5 $\frac{3}{8}$	20 $\frac{1}{2}$	30 $\frac{1}{2}$	5+5	...	?	British Museum.
37	4 $\frac{1}{2}$	24 $\frac{3}{4}$	32 $\frac{1}{2}$	5+5	...	Burma . .	A. H. Collins.
36 $\frac{1}{8}$	5 $\frac{1}{2}$	28 $\frac{3}{4}$	31 $\frac{3}{4}$	4+3	...	Manipur . .	A. O. Hume, C.B.
35 $\frac{3}{4}$	4 $\frac{5}{8}$	19 $\frac{3}{4}$	26 $\frac{1}{2}$	4+3	..	Do. . .	Viscount Powerscourt.
35 $\frac{1}{2}$	4 $\frac{1}{2}$	22 $\frac{1}{4}$	31 $\frac{1}{4}$	6+6	...	Kyaikto, Lower Burma	J. W. Clough.
35 $\frac{1}{2}$	6 $\frac{1}{2}$	24	30 $\frac{1}{2}$	6+3	18 $\frac{1}{2}$	Manipur . .	A. O. Hume, C.B.
35	4 $\frac{1}{2}$	30 $\frac{1}{2}$	36	5+5	...	Lower Burma .	G. R. Radmore.
34 $\frac{7}{8}$	5 $\frac{1}{2}$	27 $\frac{1}{2}$	32	6+6	...	Burma . .	A. O. Hume, C.B., British Museum.
34 $\frac{1}{2}$	4	21 $\frac{1}{4}$	27	6+6	...	Do. . .	Viscount Powerscourt.
34 $\frac{1}{8}$	5	24	32 $\frac{1}{2}$	6+6	...	Do. . .	Hon. Walter Rothschild.
34	5 $\frac{7}{8}$	23 $\frac{1}{2}$	29 $\frac{3}{4}$	10+10	...	Do. . .	J. Carr Saunders.
33 $\frac{3}{4}$	4 $\frac{3}{4}$	17 $\frac{3}{8}$	24 $\frac{3}{8}$	5+4	...	Do. . .	Capt. G. H. Mockler.
33 $\frac{1}{2}$	...	...	40	...	15	Pegu . .	Col. R. Pole-Carew, C.B.
33 $\frac{1}{8}$	5 $\frac{1}{8}$	33 $\frac{1}{8}$	37 $\frac{1}{4}$	5+5	14	Burma . .	Sir Edmund G. Loder, Bart.
33	4 $\frac{5}{8}$	28 $\frac{7}{8}$	32 $\frac{1}{8}$	3+3	...	Do. . .	Sir Victor Brooke's Collec- tion.
32 $\frac{1}{8}$	5 $\frac{3}{8}$	20 $\frac{1}{2}$	20 $\frac{1}{2}$	4+3	...	Do. . .	Gen. Sir Henry Collett, K.C.B.
32	4 $\frac{1}{2}$	18 $\frac{1}{4}$	24 $\frac{1}{4}$	6+5	...	Do. . .	Col. J. Biddulph.
-32	...	...	...	...	...	?	Maharaja of Travancore, G.C.S.I.
31 $\frac{1}{8}$	5	25 $\frac{7}{8}$	29 $\frac{1}{8}$	7+6	...	?	The late B. H. Hodgson, British Museum.
24 $\frac{3}{4}$	3 $\frac{1}{4}$	19 $\frac{1}{2}$	21 $\frac{3}{8}$	5+5	...	Burma . .	Dr. W. P. Y. Bainbrigge.
-24	4 $\frac{1}{2}$	18	18 $\frac{1}{2}$	5+5	..	Do. . .	Dublin Museum.
18 $\frac{1}{2}$	3 $\frac{5}{8}$	12 $\frac{1}{2}$	13 $\frac{1}{2}$	6+5	...	?	The late R. Swinhoe, British Museum.
13 $\frac{5}{8}$	3 $\frac{1}{4}$	...	12 $\frac{3}{8}$	6+5	...	Siam . .	British Museum.

THAMENG or ELD'S DEER (*Cervus eldi*)—*continued*.

Extreme length  
of right antler  
round the out-  
side curve, high-  
est point, to tip  
of brow line.

Extreme length of right antler round the out- side curve, high- est point, to tip of brow line.	Circum- ference.	Tip to Tip.	Widest span.	Number of points.	Locality.	Owner.
-56 $\frac{1}{4}$	5 $\frac{5}{8}$	28	37	13	Burma . .	W. F. Loftus-Tottenham.
-55 $\frac{1}{4}$	4 $\frac{1}{2}$	34 $\frac{1}{2}$	42 $\frac{1}{4}$	12	Do. . .	Do.
-55	7	28 $\frac{1}{2}$	38 $\frac{1}{2}$	12	Do. . .	Vet.-Capt. G. H. Evans.
-55	5 $\frac{3}{4}$	30	37	15	Do. . .	Do.
-55	5	...	42	13	Do. . .	Do.
-53 $\frac{1}{2}$	5 $\frac{1}{2}$	...	38	16	Do. . .	W. F. Loftus-Tottenham.
-52 $\frac{3}{4}$	4 $\frac{1}{2}$	24 $\frac{5}{8}$	36 $\frac{3}{4}$	12	Do. . .	Do.
-51 $\frac{1}{8}$	5	...	33 $\frac{1}{2}$	7	Do. . .	Do.
-51	5 $\frac{1}{2}$	27	37 $\frac{1}{2}$	10	Do. . .	Vet.-Capt. G. H. Evans.
-50 $\frac{1}{2}$	7 $\frac{1}{4}$	36	39 $\frac{1}{2}$	14	Do. . .	Do.
-50 $\frac{1}{2}$	5 $\frac{1}{2}$	...	29 $\frac{1}{2}$	14	Do. . .	Do.
-50 $\frac{1}{2}$	5	30 $\frac{1}{2}$	37	8	Do. . .	Do.
-50	5 $\frac{1}{4}$	25 $\frac{1}{2}$	33	12	Do. . .	W. F. Loftus-Tottenham.
-49 $\frac{1}{2}$	6 $\frac{1}{2}$	27	37 $\frac{1}{2}$	9	Do. . .	Vet.-Capt. G. H. Evans.
-49 $\frac{1}{2}$	5 $\frac{1}{4}$	27 $\frac{1}{2}$	36	10	Do. . .	W. F. Loftus-Tottenham.
-48 $\frac{1}{2}$	5 $\frac{1}{4}$	23 $\frac{3}{4}$	36	13	Do. . .	Do.
-47 $\frac{1}{2}$	5	...	34 $\frac{5}{8}$	13	Do. . .	Vet.-Capt. G. H. Evans.
-46 $\frac{1}{2}$	6	16	...	9+6	Do. . .	S. E. F. Jenkins.
-46	5 $\frac{1}{4}$	20	30	10	Do. . .	Vet.-Capt. G. H. Evans.
-44 $\frac{1}{2}$	5	...	23	10	Do. . .	Do.
-44	5	22	36	14	Do. . .	Do.
-43 $\frac{1}{2}$	5 $\frac{1}{2}$	30	33	10	Do. . .	W. F. Loftus-Tottenham.
-43 $\frac{1}{2}$	5 $\frac{1}{2}$	16 $\frac{1}{2}$	27 $\frac{1}{2}$	14	Do. . .	Vet.-Capt. G. H. Evans.
-43	4 $\frac{3}{4}$	...	34 $\frac{1}{2}$	12	Do. . .	Do.
-40 $\frac{1}{2}$	4 $\frac{3}{4}$	28	33 $\frac{1}{2}$	9	Do. . .	Do.
-40	5 $\frac{1}{2}$	...	40 $\frac{1}{4}$	10	Do. . .	W. F. Loftus-Tottenham.





Frontlet and Antlers of Indian Muntjac.

**INDIAN MUNTJAC or BARKING DEER (*Cervulus muntjac*).**

This species is the typical representative of a genus of small Oriental deer differing widely from all those included in *Cervus*. The antlers, which do not exceed half the length of the head, have a short brow tine and an unbranched beam, and are supported on long skin-covered pedicles, continued downwards as convergent ridges on the forehead, whence the name of rib-faced deer. Tufts of bristly hair occupy the position of the antlers in the females. The muzzle has a large naked portion, and although there is generally a pair of glands on the face, there are none either on the hock or the cannon-bone. The young are spotted, but the adults uniformly coloured. In the Indian muntjac, which is one of the reddish-coloured species, and whose range extends from Ceylon and India through Burma to China, the Malay Peninsula, Sumatra, and Java, the height at the shoulder varies from 20 to 22 inches. The Chinese muntjac (*C. reevesi*), from Southern China and Formosa, is a much smaller species, also reddish in colour; but in the rare Tenasserim muntjac (*C. fax*), and the larger but equally scarce hairy-fronted muntjac (*C. crinifrons*) of Eastern China, the general hue of the body is dark purplish sepia-brown, with white on the buttocks and under surface of the tail. The average height at the shoulder is about 26 inches, and weight about 28 lbs.; a female stands about 23 inches and weighs about 32 lbs. In 1852 Mr. Wilson ("Mountaineer") had a specimen of which Mr. A. O. Hume recorded the measurements as follows: antlers round the curve outside, 9.5 and 9.0 long. In those days he did not collect horns, and only noted them.

**INDIAN MUNTJAC or BARKING DEER (*Cervulus muntjac*)—continued.**

Length on outside curve of antler from burr to tip.	Circumference above burr.	Tip to Tip.	Locality.	Owner.
-10 $\frac{5}{8}$	...	...	Java .	H. Van Son.
7 $\frac{5}{8}$	4 $\frac{1}{2}$	3 $\frac{1}{2}$	Lombok .	Hon. Walter Rothschild.
<sup>1</sup> -7 $\frac{1}{2}$	...	...	Near Mussuri .	Major A. E. Ward.
7 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{5}{8}$	Lombok	Hon. Walter Rothschild.
-6 $\frac{3}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	Perak .	Perak Museum.
6 $\frac{3}{4}$	2 $\frac{1}{4}$	3	Ranikhet	Surgeon - Major B. W. C. Deeble.
-6 $\frac{3}{4}$	...	...	Dugshai, Punjab	J. Johnston-Stewart.
6 $\frac{5}{8}$	2 $\frac{1}{4}$	3 $\frac{1}{8}$	Java . . .	J. C. Van Son.
-6 $\frac{1}{2}$	..	...	Do. . .	H. Van Son.
6 $\frac{1}{2}$	2 $\frac{5}{8}$	3 $\frac{1}{2}$	Nepal .	The late B. H. Hodgson, British Museum.
6 $\frac{1}{2}$	3	3 $\frac{3}{8}$	?	A. O. Hume, C.B.
-6 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	Namba Forest, Assam	Surgeon-Capt. H. S. Wood.
-6 $\frac{1}{2}$	2 $\frac{3}{4}$	...	North of Mussuri	Capt. Harry V. Brooke.
6	2 $\frac{5}{8}$	4 $\frac{3}{4}$	Taroy, Burma .	Vet.-Capt. G. H. Evans.
-5 $\frac{1}{2}$	...	...	?	Indian Museum.
5 $\frac{1}{2}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	Assam . . .	A. H. Straker.
5 $\frac{1}{2}$	2	2	Laos States, Cambodia	A. Waley.
5 $\frac{3}{8}$	3	...	?	Col. R. J. Heber-Percy.
5 $\frac{1}{4}$	2	3 $\frac{1}{8}$	S. India .	Sir Victor Brooke's Collection.
5 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{8}$	Assam	P. Russel.
-5 $\frac{1}{4}$	...	...	Mandla Dist., C.P.	Capt. B. H. Boucher.
5	3	3	Assam	Major C. S. Cumberland.
-5	3 $\frac{1}{2}$	3 $\frac{5}{8}$	North Kanara .	Lieut.-Col. L. L. Fenton.

<sup>1</sup> Weight 37 lbs.**TIBETAN MUNTJAC (*Cervulus lachrymans*).**

Nearly allied to the last, but smaller.

Length on outside curve of longest antler.	Circumference.	Tip to Tip.	Locality.	Owner.
2 $\frac{1}{2}$	1 $\frac{5}{8}$	3	Ningpo . . .	The late R. Swinhoe, British Museum.
-2 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{1}{4}$	Do. .	Dublin Museum.



Head of Hairy-fronted Muntjac.

**THE HAIRY-FRONTED MUNTJAC (*Cervulus crinifrons*).**

Length on outside curve of longest antler.	Circumference.	Tip to Tip.	Locality.	Owner.
1½	...	4½	Ningpo . . . .	British Museum.

**TENASSERIM MUNTJAC (*Cervulus feæ*).**

Antlers about two inches long.

**EUROPEAN ROE (*Capreolus vulgaris*).**

Roe may be recognised by the rudimentary tail, and the medium-sized antlers rising close together and almost vertically from the head, without a brow tine, and regularly forking at a point about two-thirds the total length, with the posterior prong again subdividing, so that the number of points is usually three. There is no gland and tuft on the hock, but one on the upper part of the hinder cannon-bone. In the European roe the height at the shoulder is about 26 inches. In winter the coat is dark speckly brown with a large white rump-patch, but in summer foxy red, with little or no white behind. The range embraces the greater part of Europe as far as the Caucasus, and probably Asia Minor.

EUROPEAN ROE (*Capreolus vulgaris*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
13	4	14 $\frac{1}{2}$	Germany . .	Viscount Powerscourt.
13	4	14 $\frac{1}{2}$	Do. .	Do.
13	3 $\frac{1}{2}$	10 $\frac{1}{4}$	Do.	Do.
-13	6 $\frac{1}{2}$	8 $\frac{1}{2}$	Do. . .	H.R.H. the Duke of Saxe-Coburg and Gotha.
-13	7	10	Do.	Do.
-13	6 $\frac{1}{2}$	8	Do.	Do.
12 $\frac{3}{4}$	3	8 $\frac{1}{2}$	Do. .	Viscount Powerscourt.
12 $\frac{1}{2}$	4	9 $\frac{1}{2}$	Do. .	Do.
12 $\frac{1}{4}$	4 $\frac{3}{4}$	9	Servia .	Do.
-12 $\frac{1}{8}$	3 $\frac{3}{4}$	4 $\frac{1}{2}$	Austria .	Capt. John Marriott.
<sup>1</sup> -12 $\frac{1}{8}$	...	...	Perthshire .	R. Moncrieff.
11 $\frac{5}{8}$	...	6	Monymusk, N.B.	Sir Arthur Grant, Bart.
<sup>1</sup> 11 $\frac{1}{2}$	...	...	Orton, Speyside	Sir G. Macpherson Grant, Bart.
11 $\frac{1}{2}$	3	8 $\frac{3}{4}$	Germany	Viscount Powerscourt.
-11 $\frac{1}{4}$	6	6	Perth	J. G. Millais.
11 $\frac{1}{4}$	4 $\frac{1}{2}$	8 $\frac{3}{4}$	Servia . . .	Viscount Powerscourt.
-11 $\frac{1}{8}$	4 $\frac{3}{4}$	...	Scotland . . .	Duke of Bedford.
-11 $\frac{1}{8}$	4 $\frac{1}{2}$	...	(Single antler dug up)	J. G. Millais.
11	7 $\frac{1}{4}$	...	Ross-shire . . .	H. M. Warrand.
-11	...	7 $\frac{1}{4}$	Aberdeenshire	Col. Gordon Cumming.
11	5 $\frac{1}{10}$	7 $\frac{1}{2}$	Ross-shire .	H. M. Warrand.
11	<sup>3</sup> 8	8 $\frac{3}{4}$	Germany .	Viscount Powerscourt.
11	7 $\frac{1}{8}$	6 $\frac{7}{8}$	Sligo, Ireland .	Sir Henry Gore Booth, Bart.
10 $\frac{1}{2}$	...	...	Beaufort, Ross-shire	J. G. Millais.
10 $\frac{1}{2}$	6 $\frac{1}{2}$	6	Ballindalloch . .	Sir G. Macpherson Grant, Bart. .
10 $\frac{1}{2}$	3 $\frac{1}{2}$	5 $\frac{3}{4}$	Inverness . .	C. Macpherson Grant.
10 $\frac{1}{4}$	3 $\frac{1}{2}$	8 $\frac{1}{4}$	?	Major James Grant.
-10 $\frac{1}{4}$	...	...	?	J. G. Millais.

<sup>1</sup> and <sup>2</sup> Recorded by J. G. Millais (*British Deer and their Horns*).<sup>3</sup> Abnormal (Peraque).

EUROPEAN ROE (*Capreolus vulgaris*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-10 $\frac{1}{4}$	3 $\frac{1}{8}$	Single antler	Dorset .	A. Du Cane.
10	2 $\frac{1}{4}$	4 $\frac{1}{2}$	Ross .	Sir Edmund G. Loder, Bart.
9 $\frac{3}{4}$	2 $\frac{3}{4}$	3 $\frac{1}{2}$	Austria .	H. R. H. le Duc d'Orléans.
9 $\frac{3}{4}$	8 $\frac{1}{8}$	12 points	Sligo, Ireland .	Sir Henry Gore Booth, Bart.
9 $\frac{7}{8}$	5	5	Dorset . . .	J. E. Harting.
9 $\frac{7}{8}$	3 $\frac{3}{4}$	5 $\frac{3}{4}$	Moray .	Sir Victor Brooke's Collection.
9 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{1}{2}$	?	Col. Ralph Vivian.
9 $\frac{1}{2}$	3 $\frac{1}{4}$	7 $\frac{3}{4}$	New Forest .	Hon. Gerald Lascelles.
-9 $\frac{1}{4}$	5 $\frac{1}{2}$	5	Beaufort, Ross-shire .	J. G. Millais.
-9 $\frac{1}{4}$	4	5 $\frac{1}{16}$	Ross-shire . . .	Col. A. J. Warrand.
-9 $\frac{1}{4}$	3 $\frac{1}{2}$	7 $\frac{1}{16}$	Do.	Do.
9	3	6 $\frac{1}{2}$	Banff . .	H. Brinsley Brooke.
8 $\frac{3}{4}$	2 $\frac{3}{4}$	5 $\frac{1}{2}$	Glenrinnnes .	J. G. Williams.
8 $\frac{5}{8}$	3	4	Scotland .	Col. Ralph Vivian.
8 $\frac{1}{2}$	6 $\frac{1}{4}$	4 $\frac{7}{8}$	Lissadell, Ireland .	Sir Henry Gore Booth, Bart.
8 $\frac{1}{2}$	3	4 $\frac{1}{2}$	Scotland . . .	C. C. Branch.
8 $\frac{1}{2}$	3	4 $\frac{1}{2}$	France . . .	British Museum.
8 $\frac{1}{2}$	2 $\frac{3}{4}$	...	Islay . .	Capt. M. M'Neill.
-8 $\frac{1}{2}$	4 $\frac{1}{8}$	3	Scotland .	C. V. A. Peel.
8 $\frac{1}{4}$	3 $\frac{5}{8}$	27 $\frac{1}{8}$	Lissadell .	J. Kenneth Foster.



Head of Siberian Roe.

**SIBERIAN ROE** (*Capreolus pygargus*).

Larger than the last, the height at the shoulder varying from 28 to 34 inches; the ears shorter and more hairy, the white rump-patch larger, and the antlers longer and more rugose with numerous nodose snags.

Mr. St. George Littledale says the specimens he observed barked like a "barking deer."

*Distribution*.—From the Altai and mountains of Turkestan to Siberia, and probably the Caspian provinces of Persia.

SIBERIAN ROE (*Capreolus pygargus*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-18 $\frac{0}{10}$	16 $\frac{3}{4}$	...	?	Carl Hagenbeck.
16	4 $\frac{1}{2}$	12	?	Viscount Powerscourt.
15 $\frac{1}{2}$	4 $\frac{1}{4}$	8 $\frac{1}{2}$	?	Do.
15	4 $\frac{3}{4}$	...	Siberia	Sir Edmund G. Loder, Bart.
-14 $\frac{11}{16}$	31 $\frac{5}{8}$	...	Do. . .	Paris Museum.
14	3 $\frac{1}{2}$	13 $\frac{3}{4}$	Altai, Mongolia .	St. George Littledale. (See illustration.)
13 $\frac{7}{8}$	2 $\frac{7}{8}$	13 $\frac{5}{8}$	Semirechensk Altai .	H. J. Elwes.
13 $\frac{3}{4}$	3	6	Asia ?	British Museum.
13 $\frac{3}{4}$	3 $\frac{3}{4}$	11 $\frac{1}{2}$	?	H.R.H. le Duc d'Orléans.
13 $\frac{5}{8}$	4	9	Upper Yenisei Valley	} H. J. Elwes.
13 $\frac{1}{2}$	3 $\frac{3}{4}$	8 $\frac{3}{4}$	Semirechensk Altai .	
13 $\frac{1}{2}$	3 $\frac{3}{4}$	9 $\frac{5}{8}$	Upper Yenisei Valley .	
13 $\frac{1}{2}$	4 $\frac{7}{8}$	12 $\frac{3}{4}$	Do. . .	
13 $\frac{1}{2}$	3 $\frac{1}{2}$	11 $\frac{1}{4}$	S. Siberia .	W. A. L. Fletcher.
13 $\frac{5}{8}$	31 $\frac{5}{8}$	9 $\frac{1}{2}$	Siberia .	Paris Museum.
13 $\frac{1}{4}$	4	9 $\frac{1}{2}$	Do. . .	Duke of Bedford.
13 $\frac{1}{4}$	4	8 $\frac{7}{8}$	S. Manchuria <sup>2</sup> .	H. E. M. James, British Museum.
13 $\frac{1}{4}$	3 $\frac{7}{8}$	9 $\frac{1}{2}$	Upper Yenisei Valley .	H. J. Elwes.
13 $\frac{1}{4}$	4 $\frac{7}{8}$	14	Do. . .	Do.
12 $\frac{3}{4}$	3	7 $\frac{1}{4}$	Semirechensk Altai	Do.
12 $\frac{1}{2}$	3	6 $\frac{3}{4}$	?	H.R.H. le Duc d'Orléans.
12 $\frac{3}{8}$	3 $\frac{1}{2}$	7 $\frac{1}{4}$	Caucasus . .	H. J. Elwes.
12 $\frac{1}{4}$	3 $\frac{1}{2}$	3	?	Duke of Bedford.
11 $\frac{3}{8}$	4	8 $\frac{1}{8}$	Manchuria <sup>2</sup> .	British Museum.

<sup>1</sup> Circumference of burr.<sup>2</sup> These probably belong to the somewhat smaller Manchurian Roe.



Skull and Antlers of Siberian Roe shot by St. George Littledale.





Antlers of Père David's Milou Deer at Different Ages.  
From specimens at Woburn Abbey.

### PÈRE DAVID'S MILOU DEER (*Elaphurus davidianus*).

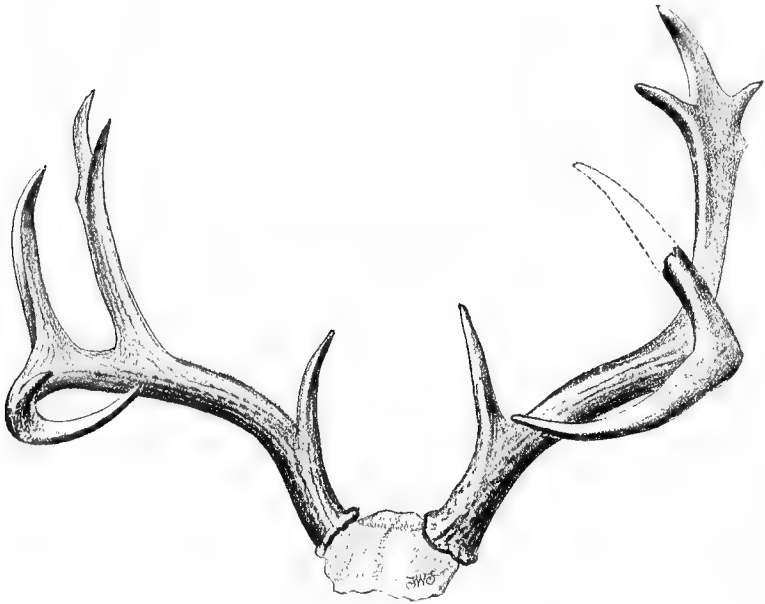
This remarkable deer differs from all the preceding, except the roes, by the absence of a brow tine to the antlers, which are large and branching, the beam forking at a comparatively short distance above the burr, and the front prong of the fork again dividing, while the hind prong is long and straight. The bushy tail is longer than in any other deer, and the neck of the male is maned. There is a gland-tuft on the upper half of the hind cannon-bone, but none on the hock. In the adult the colour is uniformly tawny, but spotted in the young. Height at shoulder about 3 feet 9 inches.

*Distribution*.—Northern China; probably unknown in the wild state.

PÈRE DAVID'S MILOU DEER (*Elaphurus davidianus*)—*continued*.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
$32\frac{7}{8}$	$6\frac{3}{8}$	$13\frac{5}{8}$	$18\frac{1}{2}$	8 + 8	Near Pekin . .	Sir Edmund G. Loder, Bart.
$-30\frac{3}{4}$	5	$35\frac{1}{16}$	$35\frac{1}{16}$	11 + 10	Imperial Park, Pekin	Paris Museum (Type Specimen), Père A. David.
$28\frac{1}{4}$	$5\frac{3}{8}$	$26\frac{1}{2}$	...	3 + 3	?	Hon. Walter Rothschild.
27	$5\frac{7}{8}$	$20\frac{1}{4}$	...	6 + 5	?	British Museum.
<sup>1</sup> 25	5	...	...	6 + 4	Bred in England .	Duke of Bedford.
22	$4\frac{5}{8}$	...	...	4 + 3	Do. .	Do.

<sup>1</sup> Back point of this head measured 28 inches from beam of antler.



Antlers of Virginian Deer. From a specimen in the British Museum.

**COMMON AMERICAN or VIRGINIAN DEER (*Mazama americana*).**

With the exception of the wapiti and elk, all the deer of America are distinguished from those of the Old World, save the roe and milou deer, by the absence of a brow tine to the antlers, which are either regularly forked or spike-like, and quite different from those of either the roe or milou deer. In the Virginian deer they are large and complex, with a long sub-basal snag, and the front prong of the main fork developed at the expense of the hinder, and carrying a number of snags on its upper surface. Tail long. A gland-tuft on the hock, and a small cylindrical white one with a black centre near the lower end of the hind cannon-bone. Colour of upper parts chestnut in summer and bluish gray in winter, with the under surface of the tail and the buttocks pure white. Typically from Eastern North America, where the height at the shoulder reaches to 3 feet 1 inch, but represented by numerous races in other parts of the Continent, which gradually decrease in size and complexity of antlers towards the south, where they extend to Peru, Bolivia, and Guiana. Weight, 12 st. 7 lbs. (F. C. Selous). Commonly called white-tailed deer.

**COMMON AMERICAN or VIRGINIAN DEER (*Mazama americana*)—**  
*continued.*

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
27 $\frac{3}{8}$	5 $\frac{3}{8}$	Single antler	...	16	N. America	British Museum.
27 $\frac{1}{8}$	4 $\frac{3}{8}$	14 $\frac{1}{4}$	19	6+6	Do.	Do.
26 $\frac{3}{4}$	4 $\frac{3}{4}$	9 $\frac{1}{8}$	20	20	Do.	Major James Grant.
25 $\frac{3}{4}$	4 $\frac{1}{2}$	9	19	11	Maine . .	H. S. Wellcome.
25 $\frac{3}{8}$	4 $\frac{5}{8}$	10 $\frac{3}{8}$	19	15+13	Texas .	Capt. F. Cookson.
25 $\frac{1}{4}$	4 $\frac{3}{4}$	12 $\frac{7}{8}$	17 $\frac{1}{2}$	11+9	N. America	British Museum.
24 $\frac{1}{2}$	4 $\frac{1}{2}$	12 $\frac{3}{8}$	18 $\frac{1}{2}$	6+6	Do. .	J. Carr Saunders.
24 $\frac{1}{2}$	4 $\frac{1}{8}$	11 $\frac{1}{8}$	19 $\frac{1}{2}$	6+6	Do.	British Museum.
-24	4 $\frac{5}{8}$	<sup>1</sup> 19 $\frac{1}{2}$	...	18	Nebraska	G. B. Grinnell.
23 $\frac{3}{4}$	6	12	16 $\frac{3}{4}$	5+4	Wyoming .	James J. Harrison.
23	5	5	16	6+6	B. Columbia .	J. Turner-Turner.
-22 $\frac{1}{2}$	4	<sup>1</sup> 15 $\frac{3}{4}$	...	12	Medora, N.D.	Theodore Roosevelt.
21 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{1}{4}$	13 $\frac{1}{2}$	4+4	New York State	Sir Edmund G. Loder, Bart.
21	5	18 $\frac{3}{4}$	19	4+4	?	L. C. R. Messel.
19 $\frac{1}{2}$	4 $\frac{1}{4}$	12	15	5+5	Wyoming	F. C. Selous.
19 $\frac{1}{2}$	3 $\frac{1}{2}$	12 $\frac{1}{2}$	15 $\frac{1}{2}$	5+5	B. Columbia .	T. P. Kempson.
17 $\frac{3}{4}$	4 $\frac{3}{4}$	...	...	27+25	Do.	Moreton Frewen.
<sup>1</sup> ♀ 12 $\frac{1}{4}$	4	8	...	3+3	Do.	J. Turner-Turner.

<sup>1</sup> Spread.

**MEXICAN DEER (*Mazama americana mexicana*).**

One of the smaller races of the preceding, the height at the shoulder being about 2 feet 9 inches, and the antlers smaller and simpler.

*Distribution.*—South Mexico.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
13 $\frac{5}{8}$	3 $\frac{3}{8}$	6 $\frac{1}{8}$	11 $\frac{1}{4}$	3+3	Mexico	British Museum.
8 $\frac{1}{4}$	3 $\frac{1}{2}$	6	6 $\frac{1}{2}$	3+3	Do.	Sir Edmund G. Loder, Bart.
8 $\frac{1}{4}$	2 $\frac{1}{8}$	4 $\frac{3}{4}$	6 $\frac{5}{8}$	3+4	Do.	Sir Victor Brooke's Collection.



Head of Mule-Deer. From a specimen in the possession of E. S. Cameron.

**MULE-DEER (*Mazama hemionus*).**

Antlers with a much shorter sub-basal snag than in the Virginian deer, beyond which the beam is directed outwards for a short distance, and then curves upwards to form a regular fork, both prongs of which are usually equal, and generally subdivide so as to form five points on each side. Ears very large and heavy; tail moderate, terminating in a bush-like tuft. Gland-tufts on hock and cannon-bone coloured like the leg; the latter of these elongated and situated in the upper half of the cannon-bone. General colour of upper parts reddish tawny in summer, brownish or rufous speckled gray in winter, with a brown

horse-shoe mark on the forehead. Height at the shoulder, 3 feet 3 or 4 inches in the typical form. Weight, 17 stone 2 lbs. (F. C. Selous).

*Distribution*.—The greater part of North America westward of the Missouri, extending from British Columbia to California. There are several local races, among which the South Californian (*M. hemionus peninsulæ*) is one of the smallest.

Length on out-side curve.	Circumference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
30	5 $\frac{1}{4}$	...	41	17	White River, Colorado	H. A. James.
28 $\frac{3}{8}$	4 $\frac{1}{2}$	13 $\frac{1}{4}$	17 $\frac{3}{4}$	5 + 5	Wyoming	Ford G. Barclay.
28 $\frac{1}{2}$	5	18 $\frac{3}{4}$	21	6 + 4	British Columbia	J. McI. M'Iver Campbell.
28 $\frac{1}{2}$	...	...	24 $\frac{1}{2}$	...	White River, Colorado	Major Maitland Kirwan.
27	5 $\frac{1}{4}$	19 $\frac{1}{2}$	21 $\frac{3}{8}$	6 + 5	North America	Sir Edmund G. Loder, Bart.
27	5 $\frac{1}{4}$	19 $\frac{1}{2}$	22 $\frac{3}{4}$	5 + 5	British Columbia	D. H. Crake.
-26 $\frac{7}{8}$	5	...	...	35	North Dakota	Theodore Roosevelt.
-26 $\frac{3}{4}$	...	...	...	26	?	W. A. Baillie-Grohman.
26 $\frac{3}{4}$	4 $\frac{3}{4}$	19 $\frac{5}{8}$	20 $\frac{1}{8}$	5 + 5	Wyoming	Ernest Farquhar.
26 $\frac{1}{2}$	5	15 $\frac{1}{2}$	18 $\frac{1}{2}$	6 + 5	British Columbia	T. P. Kempson.
26 $\frac{1}{2}$	5 $\frac{3}{4}$	...	17 $\frac{1}{2}$	12	Wyoming	Hon. F. Thellusson.
26 $\frac{1}{8}$	4 $\frac{1}{8}$	15 $\frac{7}{8}$	22 $\frac{7}{8}$	6 + 6	Do.	Capt. F. Cookson.
26	4 $\frac{1}{2}$	20	21 $\frac{3}{4}$	7 + 5	Do.	The MacLaine of Lochbuie.
26	5	15 $\frac{1}{4}$	19 $\frac{1}{2}$	4 + 4	British Columbia	J. V. Colby.
-25 $\frac{5}{8}$	5 $\frac{1}{2}$	14 $\frac{1}{4}$	28	11 + 8	Frazer River, B.C.	A. E. Leatham.
25 $\frac{1}{2}$	5 $\frac{1}{2}$	...	21 $\frac{1}{2}$	8	Do.	Sir Peter Walker, Bart.
-25 $\frac{1}{2}$	4 $\frac{3}{4}$	...	...	28	Montana	P. Liebinger.
25 $\frac{1}{2}$	4 $\frac{3}{4}$	18	24 $\frac{1}{4}$	5 + 5	Colorado	E. T. Logan.
25 $\frac{1}{2}$	4 $\frac{1}{4}$	27	29	5 + 5	Wyoming	Capt. G. J. Fitzgerald.
25 $\frac{3}{8}$	4 $\frac{1}{8}$	19	20	5 + 5	Do.	A. H. Pollen.
25	5 $\frac{1}{4}$	27 $\frac{3}{8}$	27 $\frac{3}{8}$	16 + 13	Montana	Moreton Frewen.
25	5	20 $\frac{3}{4}$	24	5 + 5	Wyoming	J. L. Scarlett.
25	5	10	16 $\frac{3}{4}$	5 + 4	Do.	F. C. Selous.
-25	5 $\frac{3}{4}$	17 $\frac{1}{2}$	21 $\frac{1}{2}$	7 + 5	Do.	James J. Harrison.
24 $\frac{1}{2}$	5 $\frac{1}{4}$	...	23 $\frac{1}{2}$	10	Maine	H. S. Wellcome.

**MULE-DEER** (*Mazama hemionus*)—*continued*.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.		Locality.	Owner.
24 $\frac{1}{2}$	5 $\frac{1}{2}$	...	25	10	Wyoming . . .	T. W. H. Clarke.
24 $\frac{1}{2}$	5	19	24	5+5	Do. . . .	F. C. Selous.
24	5	13 $\frac{3}{4}$	17	10	British Columbia . .	T. P. Kempson.
24	4 $\frac{1}{2}$	20 $\frac{1}{4}$	20	6+5	Do. . . .	R. Rankin.
24	4 $\frac{1}{4}$	19 $\frac{1}{4}$	25 $\frac{1}{2}$	5+5	Wyoming . . .	Capt. J. McCall Maxwell.
-24	4 $\frac{1}{2}$	15 $\frac{1}{4}$	19 $\frac{1}{2}$	5+5	Do. . . .	Count E. Hoyos.
23 $\frac{1}{2}$	7	18	21	26	British Columbia . .	J. Turner-Turner.



Head of Mule-Deer. From a specimen shot by J. McL. M'Iver Campbell.

**BLACK-TAILED DEER (*Mazama columbiana*).**

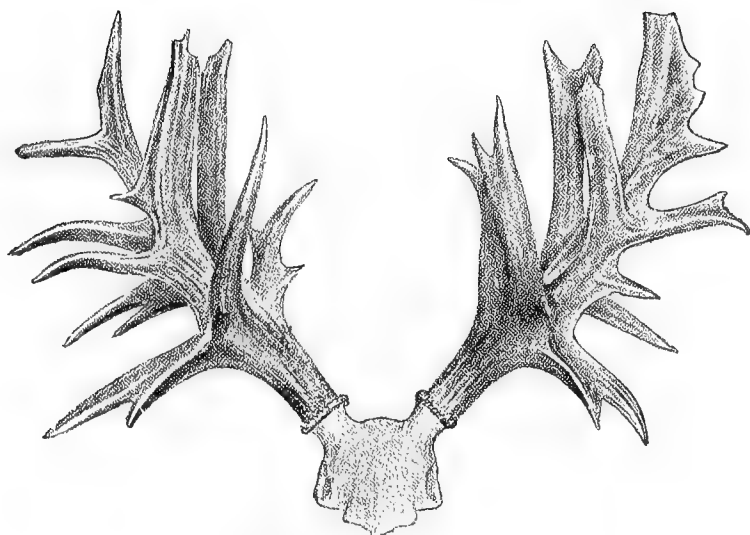
Nearly allied to the mule-deer, but of inferior size, with relatively smaller ears and finer hair ; but specially characterised by the shorter gland and tuft on the hind cannon-bone, and the larger amount of black on the tail, of which only the basal third of the lower surface is white.

*Distribution*.—Western North America, from British Columbia to California.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
27 $\frac{3}{4}$	6	15 $\frac{1}{2}$	19 $\frac{1}{4}$	9+6	British Columbia	G. Wrey.
—22	4 $\frac{1}{4}$	...	<sup>1</sup> 22	...	Vancouver	Clive Phillipps-Wolley.
—20 $\frac{1}{4}$	5	17	17	5+7	Do.	A. E. Leatham.
19 $\frac{1}{4}$	4 $\frac{1}{4}$	14	16 $\frac{1}{2}$	3+3	S. California	Sir Victor Brooke's Collection.

<sup>1</sup> Outside.





Malformed Marsh-Deer Antlers.

**MARSH-DEER** (*Mazama dichotoma*).

Antlers without a sub-basal snag, forking regularly, with both prongs again dividing, and the upper one usually more complex than the lower. Ears large, with white hair internally. Hair long and coarse, reversed on the withers for a short distance. General colour of upper parts bright rufous chestnut in summer, browner in winter; legs black from the knees and hocks downward. No tuft on cannon-bone. Size, approximately that of a red deer. Although ten is the usual number of points, sports are common.

*Distribution*.—From Brazil to the inner wooded districts of Argentina.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
24½	5	16	18	5+5	Chaco of Paraguay .	Vice - Admiral Sir William Kennedy.
23½	6½	26	25	5+5	?	Sir Edmund G. Loder, Bart.
23¾	5½	15¾	16¼	5+4	S. America . . .	British Museum.
23¼	6	...	19½	12	Do. . . .	G. R. Stuart.
22½	6¼	20	20½	5+5	Brazil . . .	Sir Victor Brooke's Collection.
22½	7½	...	15¼	6+6	Argentina . . .	Kenyon Slaney.

**MARSH-DEER** (*Mazama dichotoma*)—*continued*.

Length on out- side curve.	Circum- ference.	Tip to Tip.	Widest inside.	Points.	Locality.	Owner.
22 $\frac{3}{8}$	5 $\frac{1}{2}$	25	...	28	Argentina . .	A. Vans-Agnew.
21 $\frac{1}{2}$	5 $\frac{1}{2}$	22	16 $\frac{1}{2}$	6 + 6	Paraguay . .	S. Pulley.
21 $\frac{1}{2}$	5	12 $\frac{3}{4}$	16	5 + 5	Do. . .	Vice - Admiral Sir William Kennedy.
-21 $\frac{1}{8}$	...	19 $\frac{3}{4}$	...	6 + 5	Entre Rios . .	T. Taylor.
20	5 $\frac{1}{2}$	20	...	4 + 4	Paraguay . .	Count Henry Coudenhove.
-20	6 $\frac{3}{8}$	19 $\frac{1}{4}$	18 $\frac{3}{4}$	4 + 4	Uruguay . .	Staff-Surgeon J. Dowson, R.N.
17 $\frac{1}{2}$	4 $\frac{1}{4}$	11	...	10	Paraguay . .	Hon. Walter Rothschild.



Side view of Antlers of Marsh-Deer. From a specimen in the British Museum.

**PAMPAS DEER** (*Mazama bezoartica*).

A small deer nearly allied to the last, but with the front prong of the antlers simple, and the hinder one divided. A whorl in the hair on the middle of the back and another at the base of the neck, so that the fur of the withers is directed forwards for a considerable distance. Colour of upper parts light reddish brown, under parts and lower surface of tail white; upper surface of latter black.

Vice-Admiral Sir William Kennedy, in his *Sporting Sketches of South America*, thus describes it:—"The gama is of a light buff colour, carries a pretty symmetrical pair of horns, generally six points, but emits so strong an odour as to be called the stinking deer. Height at shoulder, 2 ft. 6 in."

*Distribution*.—Brazil to Northern Patagonia, in open districts.

Length on outside curve.	Circum- ference.	Tip to Tip.	Points.	Locality.	Owner.
14 $\frac{3}{8}$	2 $\frac{3}{8}$	13 $\frac{1}{4}$	3+3	Argentina	British Museum.
14 $\frac{1}{4}$	3	11	3+3	South America	Sir Edmund G. Loder, Bart.
14	4 $\frac{1}{4}$	11 $\frac{1}{2}$	3+3	Paraguay	Vice-Admiral Sir William Kennedy.
13	2 $\frac{1}{2}$	12 $\frac{3}{8}$	3+3	?	W. Livingstone Learmonth.
-12 $\frac{1}{2}$	3 $\frac{1}{2}$	7	12+11	Uruguay	J. Burnett.
12 $\frac{1}{2}$	2 $\frac{1}{8}$	8 $\frac{1}{2}$	3+3	?	Sir Victor Brooke's Collection.
11 $\frac{1}{8}$	3 $\frac{7}{8}$	13 $\frac{1}{4}$	3+3	?	The late Charles Darwin, British Museum.
10 $\frac{3}{8}$	2 $\frac{1}{2}$	13 $\frac{1}{8}$	3+3	North Patagonia	British Museum.
10	2 $\frac{1}{4}$	12 $\frac{1}{8}$	3+3	Argentina	Count Henry Coudenhove.
7 $\frac{1}{2}$	2 $\frac{1}{4}$	5 $\frac{1}{2}$	3+3	?	Duke of Bedford.

**PERUVIAN GUEMAL** (*Mazama antisimensis*).

Together with the closely allied Chilian guemal (*M. chilensis*), this species constitutes a group characterised by the antlers forming a single fork, of which the front prong is the smaller, and curves upwards towards the hinder one. There is no gland-tuft on the hind cannon-bone, the short tail is rather bushy, and the hair coarse and brittle.

*Distribution*.—The high Andes, from Peru to Northern Chili.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
9 $\frac{1}{2}$	7 $\frac{5}{8}$	4 $\frac{5}{8}$	Tinta, South Peru	H. Whitely, British Museum.
9 $\frac{3}{8}$	2 $\frac{1}{2}$	8 $\frac{1}{8}$	Ceuchepate, Peru (11,000 ft.)	Do.

**WOOD BROCKET (*Mazama nemorivaga*).**

The brockets are some of the smallest deer included in the genus *Mazama*, of which they are the typical representatives. They are recognisable by their simple spike-like antlers, the tufted crown of the head, and the radiation of the hair of the face from two whorls, which causes that on the nose to be directed downwards. The present species is distinguished by its small size (height at shoulder about 19 inches), its pale pepper-and-salt brownish or gray colour, the streak on the forehead, and the absence of a gland and tuft on the hock.

*Distribution*.—Guiana, Colombia, Bolivia, Brazil, and Trinidad.

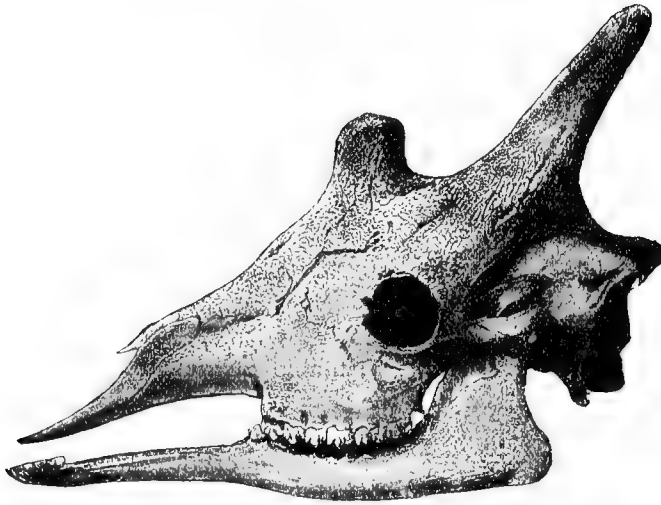
Length on front of horn.	Girth.	Tip to Tip	Locality.	Owner.
-4 $\frac{5}{8}$	3 $\frac{3}{4}$	4	Trinidad .	Dr. Percy Rendall.

**MUSK-DEER (*Moschus moschiferus*).**

From all living deer except the Chinese water-deer this species is distinguished by the absence of antlers, whose function as weapons is discharged in the male by long upper tusks. The tail is rudimentary, the fur coarse and brittle, and the lateral hoofs are very large. The males have a glandular pouch which secretes the musk from which the species takes its name. Height at shoulder about 20 inches, at rump 22 inches.

*Distribution*.—The forest districts of the Himalaya as far west as Gilgit, at elevations of 8000 feet or more in summer, to Tibet, Siberia, and Western China.

Length of Tusk.	Locality.	Owner.
-3 $\frac{1}{4}$	Himalaya . . .	J. Johnston-Stewart.
3	Gurhwal . . .	A. O. Hume, C.B.
3	Amurland .	British Museum.
2 $\frac{3}{4}$	Himalaya . . .	Rowland Ward.
2 $\frac{1}{2}$	Do. . . . .	Dr. Percy Rendall.
2 $\frac{1}{4}$	Kashmir . .	Sir Edmund G. Loder, Bart.
2 $\frac{1}{8}$	Do. . . . .	Major A. Nugent.



A. II. Neumann's Northern Giraffe Skull. From De Winton, *P.Z.S.* February 1897.

**NORTHERN GIRAFFE** (*Giraffa camelopardalis*).

*Ihuhla* of the Swazis.

*Indhlulamiti* of the Zulus.

*Tuthla* of the Basutos.

*Ngabe* of the Masawaras.

*Giri* or *Halgiri* of the Somalis.

*Kameel* of the Boers.

The long and stilted limbs, the peculiarly-formed head, and the dappled hide, render giraffes distinguishable at a glance from all other living ruminants; with none of which they have, indeed, any very close affinity, although their nearest relatives are the deer. So great are their distinctions, that they constitute a family by themselves—the *Giraffidæ*. For many years it was supposed that this family was represented only by a single species; but it is now ascertained that the North and South African giraffes are markedly distinct from one another; the difference being apparently sufficient to admit of their being regarded as species. As a family characteristic, one of the most marked peculiarities of the giraffes is to be found in the horns. These consist of a pair of bony processes arising from the head between the ears, and covered during life with skin. They are never shed; and in the adult are immovably united to the bones of the skull, although separate in young animals. In addition to these, there is a more or less distinct third horn, or boss, situated on the forehead between the eyes. Giraffes have a long, extensile tongue, hairy lips,

and broad, low-crowned molar teeth. There are no tusks in the upper jaw; and the false hoofs are likewise wanting.

In the present species the third horn is well developed, measuring from three to five inches in height in old bulls. The ground-colour of the coat varies from white to fawn; the orange-red or reddish chocolate dark blotches having sharply defined edges, with the spaces between them generally narrow and distinctly demarcated, even in old individuals. Beneath the knees and hocks the legs are white in typical examples.

*Distribution.*—From the Tana river northwards through the Galla country and Somaliland to Abyssinia, Kordofan, and thence probably across Africa, in suitable districts to Senegambia from about Lat. 15° N. to the Equator. An unusual tall female giraffe from Nigeria has been regarded as indicating a western race of this species, under the name of *G. camelopardalis peralta*. The giraffes of Nyasaland and the Kilimanjaro districts have been described by Dr. P. Matschie as distinct species, but their right to separation stands in need of confirmation.

#### SOUTHERN GIRAFFE (*Giraffa capensis*).

In the southern giraffe the third horn, even in old bulls, is so reduced in size as scarcely to merit that name at all. The ground-colour of the coat varies from white to dull fawn; and the dark blotches, which may be either dun or deep coffee colour, always have the centre darker than the edges, and the latter irregular and not sharply defined, so that in the adult the intervening light spaces are broad. In young individuals, however, the skin shows very clearly defined white lines between the dark blotches, forming a conspicuous network pattern; the margin of the blotches receding with age. In size, the species appears very similar to the last; and in both kinds the old bulls become much darker than the cows or immature males.

*Distribution.*—Within the last half century this species has ranged from the Orange to the Zambesi rivers. Northward of this latter river on the eastern half of the continent, at least, no giraffe is found for about 12 degrees; but north of the Rufizi river they again appear and continue through German East Africa, reaching westward to Lake Tanganyika, and occurring east of the Mari escarpment and south of the Tana river in British East Africa (De Winton).

**SOUTHERN GIRAFFE** (*Giraffa capensis*)—*continued*.

Total height.	At shoulder.	Locality.	Owner.
ft. ins. -18 7	ft. ins. ...	South-East Africa . .	F. Vaughan Kirby.
<sup>1</sup> -18 0	12 0	South Africa	The late Sir W. Cornwallis Harris.
-17 6	Average height	South-East Africa	F. Vaughan Kirby.
♂ 17 0	...	W. Matabeleland	F. C. Selous.
♀ 16 6	...	N. Kalahari .	Do.
-♀ 15 6 to 16 0	Average height	South-East Africa . .	F. Vaughan Kirby.

**NORTHERN GIRAFFE** (*Giraffa camelopardalis*).

Total height.	At shoulder.	Locality.	Owner.
ft. ins. -16 0	ft. ins. ...	Central East Africa	A. H. Neumann.

<sup>1</sup> *Portraits of the Game and Wild Animals of Southern Africa.*



Head of Male Prong-horn.

**PRONG-HORN** (*Antilocapra americana*).

Although commonly termed an antelope, this animal differs from all the members of the *Bovidae* by the forking of the horns. These are annually shed from their bony sheaths and replaced by a new pair, which commence to grow up beneath the old ones before they are cast off. In consequence of this difference the species represents a family (*Antilocapridæ*) by itself. Horns generally absent in the female. Ears long and pointed, tail short, and neck maned. General colour chestnut, with a white rump-patch, and white bars on the neck. Height at shoulder, 36 inches; weight, 70 to 80 lbs. clean.

*Distribution*.—Western United States, from British Columbia to Mexico.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
-17 $\frac{1}{4}$	6 $\frac{1}{2}$	.	9	N.W. Canada . . . .	J. Whitaker.
-17	...	..	20 outside	?	Otho Shaw.
16	6 $\frac{1}{2}$	...	...	N. Dakota . . . .	Theodore Roosevelt.
15 $\frac{3}{4}$	6 $\frac{1}{4}$	5 $\frac{7}{8}$	...	Wyoming . . . .	St. George Littledale.



PRONG-HORN (*Antilocapra americana*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
-15 $\frac{3}{4}$	5 $\frac{1}{8}$	...	20 outside	?	Otho Shaw.
-15 $\frac{5}{8}$	6	2 $\frac{7}{8}$	...	Teton Mountains .	H. Lennard.
15 $\frac{1}{2}$	4 $\frac{1}{2}$	9 $\frac{1}{2}$	...	Wyoming . . .	W. R. Cookson.
-15 $\frac{1}{2}$	5 $\frac{3}{4}$	6 $\frac{1}{2}$	...	Do. . . .	Count E. Hoyos.
15 $\frac{5}{8}$	6 $\frac{1}{4}$	7 $\frac{5}{8}$	...	?	Col. Ralph Vivian.
15	5 $\frac{5}{8}$	5 $\frac{3}{4}$	10 $\frac{1}{4}$	Wyoming .	St. George Littledale.
14 $\frac{7}{8}$	5	5 $\frac{1}{4}$	...	New Mexico . . .	Capt. F. Cookson.
14 $\frac{1}{2}$	5 $\frac{3}{4}$	12	...	?	C. F. Bengough.
-14 $\frac{1}{2}$	...	...	12 $\frac{1}{2}$	Wyoming . . . .	T. W. H. Clarke.
14 $\frac{1}{2}$	6	...	9 $\frac{1}{2}$	Laramie Plains, Wyoming .	Ford G. Barclay.
14 $\frac{1}{2}$	6 $\frac{5}{8}$	5 $\frac{1}{4}$	...	Wyoming .	Lieut.-Col. Hon. W. Coke.
14 $\frac{1}{4}$	5 $\frac{3}{8}$	6 $\frac{1}{4}$	10	Do. .	Count Scheibler.
14 $\frac{1}{4}$	6	2 $\frac{5}{8}$	...	?	Sir Victor Brooke's Collection.
14 $\frac{1}{2}$	7	4 $\frac{1}{4}$	...	?	J. McL. M'Iver Campbell.
14	5 $\frac{1}{2}$	10 $\frac{1}{4}$	...	Wyoming . .	F. C. Selous.
14	5 $\frac{3}{4}$	13 $\frac{3}{4}$	...	Colorado .	E. T. Logan.
14	6	6 $\frac{5}{8}$	...	Wyoming . .	Sir Peter Walker, Bart.
14	6	3 $\frac{1}{4}$	...	Do. . .	J. B. Gilliat.
14	5 $\frac{1}{2}$	9 $\frac{1}{4}$	...	?	J. Carr Saunders.
13 $\frac{5}{8}$	5 $\frac{1}{4}$	4 $\frac{5}{8}$	...	Wyoming . . .	W. W. Ashley.
13 $\frac{1}{2}$	5 $\frac{1}{2}$	7 $\frac{3}{4}$	...	Do.	Capt. Hugh Fraser.
13 $\frac{1}{2}$	5 $\frac{1}{2}$	7	...	Do. .	Capt. G. J. Fitzgerald.
13	5 $\frac{1}{2}$	4 $\frac{7}{8}$	...	Do. .	Capt. J. M'Call Maxwell.
13	5 $\frac{1}{2}$	...	5 $\frac{1}{2}$	Do.	Crawford G. Logan.
13	6 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	Colorado . . .	Sir Edmund G. Loder, Bart.
13	6 $\frac{1}{2}$	8 $\frac{1}{2}$	9	Wyoming .	Dublin Museum.



Horns of Bubaline Hartebeest. From Julius Jeppe's specimen.

### BUBALINE HARTEBEEST (*Bubalis boselaphus*).

This species brings us to the great family of hollow-horned ruminants, or *Bovidae*, in which the horns are in the form of unbranched hollow sheaths, which are never shed, and are supported on bony cores. The hartebeests are large antelopes with naked muzzles, abnormally long faces, doubly curved horns, small face-glands, large valvular nostrils (of which the lower lids are covered with short hairs), long, tufted tails, and large lateral hoofs. The present species is the smallest of the group, standing only 43 inches at the shoulder. It has a short pedicle supporting the horns, which are in the form of the letter W, and the colour is uniform tawny, with the tail-tuft black.

*Distribution*.—Northern Africa (interior of Morocco, Algeria, and Tunisia) and Arabia.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
14½	8½	9½	North Africa . . . .	British Museum.
14½	6½	9½	“ ?	Col. Ralph Vivian.
13½	9½	9½	Tunisia . . . . .	Julius Jeppe.
13½	7	5½	North Africa . . . .	British Museum.



Horns of West African Hartbeest. Shot by J. W. Carroll.

**WEST AFRICAN HARTEBEEST** (*Bubalis major*).

Closely related to the preceding animal, of which, when fully known, it may turn out to be merely a local race with more massive horns. Body said to be of a uniform grayish brown, face deep brown, the fore-legs streaked with dark brown or blackish from the knees downwards, and the tail-tuft black.

*Distribution*.—Gambia, Lower Nigeria, and the interior of the Cameroons.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
25 $\frac{1}{2}$	11 $\frac{3}{4}$	12 $\frac{1}{2}$	Nigeria . . .	P. A. Clive.
25 $\frac{3}{8}$	12 $\frac{1}{4}$	11 $\frac{1}{4}$	Yauri, Hausa States	J. W. Carroll. (See illustration.)
25 $\frac{1}{4}$	12 $\frac{3}{4}$	13 $\frac{3}{8}$	Near Borgu . . .	Capt. N. C. Welch.
25	11 $\frac{3}{4}$	10 $\frac{1}{4}$	Benue River . . .	Julius Jeppe.
23 $\frac{1}{4}$	11 $\frac{1}{2}$	22 $\frac{1}{2}$	Yauri, Hausa States	J. W. Carroll.
-23.5	12.5	malformed 6	Togoland . . .	Berlin Museum.
23	12 $\frac{1}{4}$	9 $\frac{1}{4}$	Niger Sudan . . .	Hon. Walter Rothschild.
22	11	19 $\frac{3}{4}$	Ibi, Nigeria . . .	Capt. A. H. Festing.
21 $\frac{3}{4}$	12 $\frac{1}{4}$	malformed 8 $\frac{3}{4}$	Near Borgu . . .	Capt. N. C. Welch.

WEST AFRICAN HARTEBEEST (*Bubalis major*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
<sup>1</sup> 21 $\frac{1}{2}$	12 $\frac{1}{4}$	...	Lokoja . .	Capt. C. A. Wilding.
21 $\frac{1}{2}$	10 $\frac{1}{2}$	13 $\frac{3}{4}$	Do. .	Capt. A. H. Festing.
21 $\frac{1}{4}$	12	12 $\frac{1}{4}$	Gambia .	H. L. Stephen.
-21 $\frac{1}{4}$	11	9 $\frac{1}{8}$	Do.	Paris Museum.
21	11	9 $\frac{1}{2}$	Lokoja .	Col. F. D. Lugard, C.B., D.S.O.
21	12	11	Do. .	F. H. Barber.
21	11 $\frac{1}{2}$	10 $\frac{3}{4}$	Do. .	A. Ohlsson.
20 $\frac{3}{8}$	10 $\frac{1}{4}$	7	Nigeria .	British Museum.
20	11	10 $\frac{1}{4}$	Do.	Mr. Justice Hopley.
♀ 20	9 $\frac{5}{8}$	6	Lokoja	A. W. M. Brodie.
-19 $\frac{7}{8}$	11 $\frac{1}{2}$	10 $\frac{3}{8}$	Gambia	Dr. Percy Rendall.
♀ 19 $\frac{3}{4}$	9	6 $\frac{1}{2}$	Lokoja .	F. H. Barber.
♀ 19	8 $\frac{1}{2}$	13	Nigeria .	Major A. J. Arnold, D.S.O.
♀ 18	8 $\frac{1}{2}$	14	Do. .	Hon. Walter Rothschild.
♀ 18	9	7	Lokoja .	The late Dr. Higgs.
♀ 17 $\frac{1}{2}$	8 $\frac{3}{4}$	7 $\frac{1}{2}$	Benue River .	Julius Jeppe.
♀ 17 $\frac{1}{4}$	9	5 $\frac{1}{2}$	Lokoja . . .	Col. F. D. Lugard, C.B., D.S.O.

<sup>1</sup> Height at shoulder, 54 inches.



Frontlet and Horns of Tora Hartebeest. Shot by Lieut.-Col. Hon. W. Coke.

### TORA or TETEL HARTEBEEST (*Bubalis tora*).

Horn-pedicle of medium length, the horns themselves in the form of an inverted bracket (—). Height at shoulder about 48 inches. Colour uniformly pale tawny fulvous, with the exception of the tail-tuft and chin, which are black. Although of the same uniform colour, this species is easily distinguished from *B. boselaphus* by its superior size, higher gait, and differently shaped horns.

*Distribution*.—Upper Nubia, Northern Abyssinia and Kordofan.

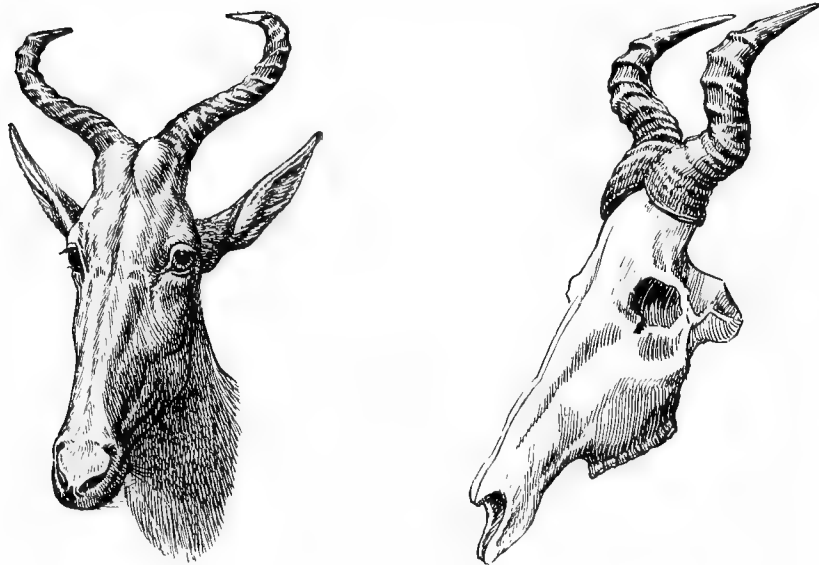
Length on front curve.	Circumference.	Tip to Tip	Locality.	Owner.
21	9	19 $\frac{1}{2}$	Sudan . . . .	Lieut.-Col. Hon. W. Coke. (See illustration.)
20 $\frac{7}{8}$	9 $\frac{1}{4}$	14 $\frac{1}{2}$	Do. . . . .	Hon. Walter Rothschild.
20	9 $\frac{5}{8}$	15 $\frac{5}{8}$	Do. . . . .	British Museum.
20	9 $\frac{1}{2}$	14 $\frac{3}{4}$	Lake Zuay, Abyssinia .	Prince de Lucinge.
19 $\frac{3}{4}$	9	16 $\frac{1}{8}$	Dombelas, Abyssinia .	British Museum.
19 $\frac{1}{4}$	9	13 $\frac{3}{4}$	Do. . . . .	Sir Victor Brooke's Collection.
18 $\frac{1}{2}$	8 $\frac{3}{4}$	15 $\frac{1}{4}$	Sudan . . . . .	Col. Ralph Vivian.
18 $\frac{1}{2}$	...	16 $\frac{9}{10}$	Upper Basalam River, Abyssinia	J. Menges.
18 $\frac{1}{4}$	8 $\frac{1}{2}$	11 $\frac{1}{4}$	Nubia . . . . .	Julius Jeppe.
18	8 $\frac{1}{2}$	14 $\frac{1}{2}$	Settite River . . . .	W. D. James.
17 $\frac{1}{2}$	9 $\frac{3}{4}$	18	Bogos-land, Abyssinia .	British Museum.

**TORA or TETEL HARTEBEEST** (*Bubalis tora*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
17	9 $\frac{1}{2}$	13 $\frac{1}{2}$	Settite River . . .	W. D. James.
♀ 14 $\frac{1}{2}$	6 $\frac{7}{8}$	5 $\frac{5}{8}$	Sudan . . .	Hon. Walter Rothschild.
♀ 14 $\frac{1}{4}$	6 $\frac{1}{4}$	18	Upper Nubia . . .	Julius Jeppe.
♀ 13 $\frac{7}{8}$	6 $\frac{3}{4}$	14	Do. . .	Sir Edmund G. Loder, Bart.
♀ 13 $\frac{3}{8}$	..	14 $\frac{5}{8}$	Abyssinia . . .	J. Menges.



Head of Tora Hartebeest.



Head of Female and Skull of Male Neumann's Hartbeest.

**NEUMANN'S HARTEBEEST** (*Bubalis tora neumanni*).

Nearly allied to the typical *tora*, but distinguished by the stouter horns, on which the rings are less distinct and do not extend so far round, and the generally richer coloration. The horns are also less divergent. Mr. Walter Rothschild, the describer of this form, gives the following particulars :—

Colour of hair fulvous fawn, much richer on the back, where there are also some darker spots, which may be stains or natural ; below very much paler. Chin blackish, tip of tail black. The male is brighter and darker in colour than the female. There are also on the back some patches with longer, thicker, almost whitish-buff hair, perhaps remains of the winter fur.

*Description*.—East Africa, in the neighbourhood of Lake Rudolph.

Discovered by A. H. Neumann.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
16½	10¾	8½	N.E. of Lake Rudolph . . .	A. H. Neumann.
♀ 13½	7½	9¾	E. shore of Lake Rudolph . . .	Do.
♀ 13¾	7½	10	?	Lord Delamere.



Head of Swayne's Hartebeest. Shot by Major H. G. C. Swayne.

**SIG or SWAYNE'S HARTEBEEST** (*Bubalis swaynei*).

*Sig* of the Somalis.

*Korkei* of the Gallas.

Horn-pedicle and horns of the same general type as in the last species. Height at shoulder about 47 inches; weight about 300 lbs. General colour pale chocolate-brown, with white tips to the hairs; face black, except the muzzle and a line between the eyes; shoulders and upper part of fore-legs, as well as a patch on upper part of hind-legs, also black.

*Distribution*.—Interior of Northern Somaliland and Shoa; in Somaliland it is found on the dry plateau known as the *haud*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
20 $\frac{1}{4}$	8 $\frac{7}{8}$	26 $\frac{3}{4}$	Somaliland .	Major H. G. C. Swayne.
19 $\frac{1}{2}$	9 $\frac{1}{2}$	22 $\frac{1}{2}$	Do. . .	G. H. Cheetham.
-19 $\frac{1}{4}$	...	24 $\frac{1}{4}$	N. Somaliland .	J. Menges.
-19	9 $\frac{1}{4}$	18 $\frac{1}{4}$	Do. . .	Capt. M. M'Neill.



**SIG or SWAYNE'S HARTEBEEST** (*Bubalis swaynei*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
18 $\frac{3}{4}$	9 $\frac{1}{4}$	16	N. Somaliland	Ford G. Barclay.
18 $\frac{1}{2}$	9 $\frac{1}{4}$	19 $\frac{1}{2}$	Do.	T. W. Greenfield.
18 $\frac{3}{8}$	8 $\frac{3}{4}$	18	Do.	Major H. G. C. Swayne.
-18	8 $\frac{3}{4}$	10 $\frac{3}{4}$	Do.	Count J. Potocki.
18	9	22	Do.	B. R. M. Glossop.
17 $\frac{3}{4}$	11	17	Galla Country	Viscount Edmond de Poncins.
17 $\frac{3}{4}$	8 $\frac{3}{4}$	21	Somaliland	Count J. de Bylands.
17 $\frac{3}{4}$	10	21 $\frac{1}{2}$	Do.	E. Lee Townshend.
17 $\frac{3}{4}$	10	20	Do.	Digby Davies.
17 $\frac{1}{2}$	8 $\frac{1}{8}$	19 $\frac{1}{2}$	Do.	T. W. H. Clarke.
17 $\frac{1}{2}$	9 $\frac{1}{4}$	19	Do.	Sir Edmund G. Loder, Bart.
17 $\frac{1}{2}$	9	21 $\frac{3}{4}$	Do.	J. J. Richardson.
17 $\frac{1}{2}$	10	21 $\frac{3}{4}$	Do.	Capt. J. M'Call Maxwell.
17 $\frac{1}{2}$	9 $\frac{3}{4}$	21	Do.	H. A. Bryden.
-17 $\frac{1}{2}$	9	19 $\frac{1}{2}$	Do.	C. V. A. Peel.
17 $\frac{1}{2}$	8 $\frac{1}{2}$	21	Do.	Major C. F. Blane.
-17 $\frac{1}{4}$	8 $\frac{1}{2}$	19 $\frac{1}{8}$	Do.	J. Johnston-Stewart.
-17 $\frac{1}{4}$	...	...	Do.	Major George Douglas.
-17 $\frac{1}{8}$	10 $\frac{1}{10}$	18 $\frac{1}{8}$	Abyssinia	Prince A. de Lucinge.
17	9	10	Somaliland	W. W. Ashley.
17	9	20 $\frac{3}{4}$	Do.	J. Byng Paget.
17	9 $\frac{1}{2}$	19	Do.	Sir H. D. Tichborne, Bart.
17	8 $\frac{3}{4}$	15 $\frac{1}{2}$	Do.	Capt. George Campbell.
17	9 $\frac{1}{2}$	18 $\frac{1}{2}$	Do.	R. M'D. Hawker.
-17	9	17	Do.	A. E. Pease.
17	8 $\frac{3}{4}$	17 $\frac{1}{2}$	Do.	Capt. F. C. Quicke.
16 $\frac{1}{2}$	9	12 $\frac{1}{4}$	Do.	W. R. Bindloss.
-16 $\frac{1}{2}$	9 $\frac{1}{2}$	15 $\frac{3}{4}$	Do.	Paris Museum.
16 $\frac{1}{2}$	10	16	Do.	J. Kenneth Foster.
16 $\frac{1}{2}$	9 $\frac{3}{4}$	12 $\frac{3}{4}$	Do.	Hon. Walter Rothschild.

**SIG or SWAYNE'S HARTEBEEST (*Bubalis swaynei*)—continued.**

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner
16 $\frac{1}{2}$	10 $\frac{1}{4}$	16	Somaliland	E. T. Marshall.
16 $\frac{3}{8}$	9	17 $\frac{1}{8}$	Do.	W. D. James.
16 $\frac{1}{4}$	8 $\frac{1}{2}$	20 $\frac{1}{2}$	Do.	Lord Delamere.
16	8 $\frac{1}{8}$	18	Do.	H.R.H. le Duc d'Orléans.
16	9 $\frac{3}{4}$	17 $\frac{1}{2}$	Do.	Prince Nicolas Ghika.
16	8 $\frac{1}{2}$	15	Do.	Capt. C. S. Timins.
16	9	18 $\frac{1}{2}$	Do.	R. Wahrmann.
16	10	16 $\frac{3}{4}$	Do.	J. Benett-Stanford.
♀ 15 $\frac{1}{2}$	6 $\frac{3}{4}$	19	Do.	Count J. de Bylands.
♀ 15 $\frac{1}{2}$	7	11 $\frac{1}{8}$	Galla Country .	Viscount Edmond de Poncins.
-♀ 15 $\frac{3}{8}$		...	N. Somaliland .	J. Menges.
-♀ 13 $\frac{1}{4}$	7	19	Somaliland .	C. V. A. Peel.



**KONGONI or COKE'S HARTEBEEST (*Bubalis cokei*).**

Horn-pedicle moderate, horns bracket-shaped, very short and thick. Height at shoulder about 45 inches. General colour uniform bright fawn, with the lower lip somewhat browner, and the lower part of the rump paler; tail long, with the black tuft ascending some way up the hinder surface.

*Distribution*.—Eastern Africa, from Usagara northwards to Kilimanjaro and Masailand. This hartebeest is named after Lieut.-Col. Hon. W. Coke, by whom it was first killed. A bull shot by Capt. R. A. J. Montgomerie, C.B., R.N., in Masailand weighed 312 lbs.

Mr. F. J. Jackson says: "This hartebeest ranges as far north as L. Naivasha, south into German territory and east to within a few miles of the coast at the back of the Shimba hills."

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
20 $\frac{3}{4}$	...	...	East Africa . . . .	Julius Jeppe.
19 $\frac{1}{4}$	10	18 $\frac{3}{4}$	Do. . . . .	J. Gardiner Muir.
19	9 $\frac{3}{4}$	16	Do. . . . .	Sir Robert Harvey, Bart.
19	10 $\frac{3}{4}$	14	Do. . . . .	Berlin Museum.
18 $\frac{5}{8}$	8 $\frac{3}{4}$	16 $\frac{1}{2}$	Do. . . . .	F. J. Jackson, C.B.
18 $\frac{1}{2}$	10 $\frac{1}{2}$	18	West of Mombasa . . . .	C. W. Hobley.

KONGONI or COKE'S HARTEBEEST (*Bubalis cokei*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
18 $\frac{1}{4}$	9 $\frac{1}{2}$	13 $\frac{1}{8}$	East Africa .	H. C. V. Hunter.
-18	7 $\frac{1}{2}$	12 $\frac{1}{2}$	Masailand .	Count Scheibler.
-17 $\frac{1}{2}$	8 $\frac{1}{8}$	15 $\frac{3}{4}$	East Africa . . .	Do.
17 $\frac{3}{8}$	9 $\frac{1}{2}$	11	Do. . . .	J. Carr Saunders.
17	9 $\frac{1}{2}$	12	Do. . . .	Lord Delamere.
17	9 $\frac{3}{8}$	13 $\frac{1}{4}$	Machakos . .	Col. F. D. Lugard, C.B., D.S.O.
17	8 $\frac{1}{2}$	14 $\frac{1}{4}$	East Africa . .	S. L. Hinde.
16 $\frac{3}{8}$	8	12 $\frac{3}{8}$	Do. . . .	British Museum.
16 $\frac{1}{4}$	9	17 $\frac{1}{4}$	Do. . . .	Sir Victor Brooke's Collection.
16 $\frac{1}{8}$	8 $\frac{5}{8}$	13 $\frac{1}{4}$	Kilimanjaro .	Sir John Kirk, K.C.B.
16 $\frac{1}{8}$	10 $\frac{1}{4}$	13 $\frac{3}{4}$	?	C. Steuart Betton.
16 $\frac{1}{8}$	10	15	?	Julius Jeppe.
16	9 $\frac{3}{4}$	12	East Africa . .	E. Gedge.
15 $\frac{3}{4}$	8 $\frac{1}{2}$	10 $\frac{1}{8}$	Taita . . .	J. Wray, British Musuem.
15 $\frac{1}{2}$	10 $\frac{1}{4}$	11 $\frac{1}{2}$	?	Sir Edmund G. Loder, Bart.
♀ 15 $\frac{1}{4}$	7 $\frac{1}{4}$	12 $\frac{1}{2}$	East Africa . .	S. L. Hinde.
♀ 13	6 $\frac{1}{4}$	13	?	Lord Delamere.



Horns of Cape Hartebeest. F. II. Barber's specimen.

**CAPE HARTEBEEST (*Bubalis cama*).**

*Khama* of the Bechuanas.

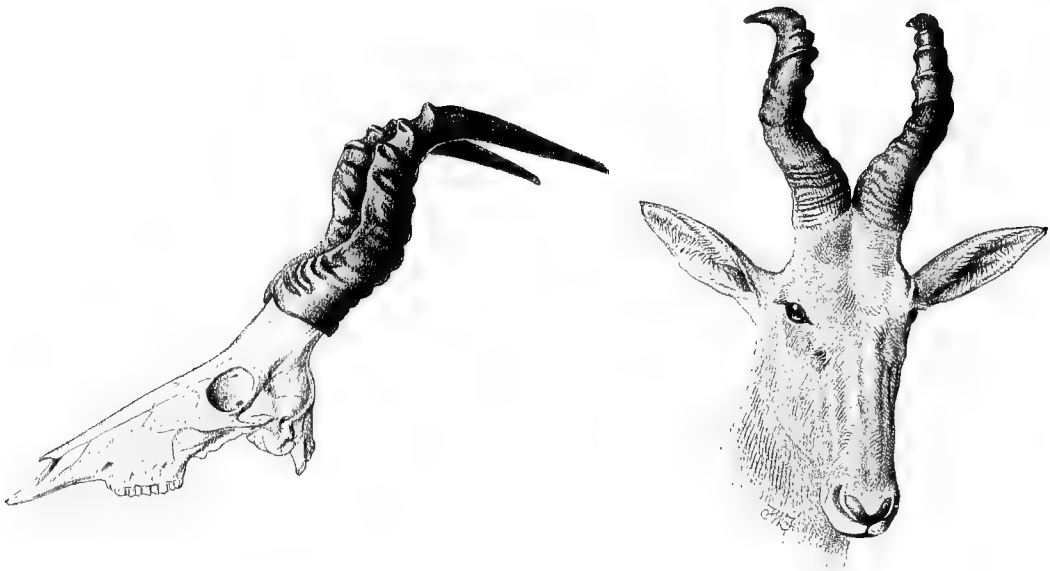
*Ingama* of the Makalakas.

Horn-pedicle greatly elongated, horns forming a letter V when viewed from the front. Height at shoulder about 48 inches. General colour brownish fulvous, darker than in any of the preceding; face (except between the eyes), back of neck, chin, shoulders, thighs, and tail, black or blackish; lower portion of buttocks with a conspicuous whitish or yellowish blaze, forming a marked contrast to the other colours.

*Distribution*.—South Africa southwards of the Limpopo, but extending farther northwards along the confines of the Kalahari desert. This fleet and handsome species (the roi hartebeest) is now nearly exterminated in the Cape, although still found in the Transvaal. A few still linger in the old Bushman country in the north-west of Cape Colony. Although practically exterminated in the Orange Free State and in most of the Transvaal (except to the north-west), numbers of hartebeest are to be found in the pleasant country—partly plains, partly open forest—of British Bechuanaland and the Bechuanaland Protectorate. In the North Kalahari and the desert regions about the Botletli River big troops are to be met with. This hartebeest is an extremely good sporting animal, remarkably fleet and enduring, and not by any means easy to bring to bag. Its flesh is very palatable, and its brilliant coat is much sought after by the native tribes.

CAPE HARTEBEEST (*Bubalis cama*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-25	...	...	Orange Free State .	F. H. Barber. (See illustration.)
25	11	10	?	C. Rube.
-24 $\frac{1}{8}$	11	7	Nata River	H. M. Barber.
24 $\frac{1}{2}$	12	9 $\frac{1}{2}$	South Africa	C. D. Rudd.
-24 $\frac{3}{8}$	10 $\frac{1}{4}$	9 $\frac{13}{10}$	Damaraland	Th. Rehbock.
-24 $\frac{1}{4}$	11	7 $\frac{7}{8}$	South Africa	Julius Jeppe.
23 $\frac{3}{4}$	10	8 $\frac{3}{8}$	Do.	The late Sir Andrew Smith, British Museum.
-23 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{7}{8}$	Do.	Julius Jeppe.
23 $\frac{1}{2}$	11 $\frac{1}{2}$	9 $\frac{1}{8}$	Do.	Hon. Walter Rothschild.
23 $\frac{1}{2}$	11 $\frac{1}{2}$	10 $\frac{1}{2}$	Khama's Country .	F. C. Selous.
23 $\frac{1}{4}$	10 $\frac{3}{8}$	8 $\frac{1}{8}$	Makari Kari Salt Pan	The late J. S. Jameson.
23	12	5 $\frac{1}{2}$	South Africa .	G. Richards.
23	11 $\frac{1}{4}$	6	Do.	F. C. Selous.
23	11	11	Do.	A. Beit.
-22 $\frac{1}{2}$	11	8 $\frac{1}{2}$	Do.	A. Ohlsson.
22 $\frac{1}{2}$	10 $\frac{3}{8}$	10 $\frac{1}{8}$	Do.	Sir Edmund G. Loder, Bart.
22 $\frac{1}{4}$	11 $\frac{1}{2}$	8	Do.	A. Moseley.
22 $\frac{1}{4}$	12 $\frac{1}{4}$	6 $\frac{1}{8}$	Do.	Major R. Hayes Sadler.
-22 $\frac{1}{16}$	13	11	Do.	Paris Museum.
-22	11 $\frac{1}{2}$	10 $\frac{1}{2}$	Do.	Dublin Museum.
22	10 $\frac{5}{8}$	8 $\frac{1}{8}$	Do.	Sir Victor Brooke's Collection.
-♀ 20	...	...	Orange Free State .	Cape Town Museum.
-♀ 19 $\frac{7}{8}$	7 $\frac{1}{10}$	11 $\frac{1}{10}$	Damaraland	Th. Rehbock.
♀ 19 $\frac{3}{4}$	7 $\frac{1}{2}$	9	South Africa . .	The late J. S. Jameson.
♀ 19 $\frac{1}{2}$	8 $\frac{3}{8}$	8 $\frac{1}{4}$	Do.	G. Richards.
♀ 19	8 $\frac{1}{2}$	6 $\frac{1}{2}$	Kalahari .	H. A. Bryden.



Skull and Head of Jackson's Hartbeest.

**JACKSON'S HARTEBEEST** (*Bubalis jacksoni*).

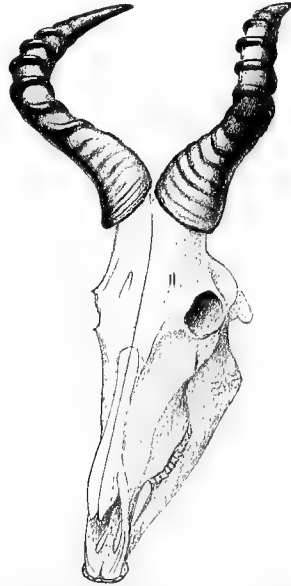
Generally similar to the preceding, but without the black blaze on the face, and with the horns less abruptly bent backwards from above. Other differences may be found to exist when the coloration of the body becomes fully known.

*Distribution.*—The interior of British Central Africa, north of Lake Baringo, Uganda, and probably northwards to the White Nile and westwards to Congoland.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
24½	10½	11¼	East Central Africa . . .	F. J. Jackson, C.B.
24	10¾	6¾	Do. . . .	Do.
23½	12	9	Do. . . .	E. Gedge.
23½	11½	6½	North End of Lake Albert	Col. Trevor Ternan.
23¼	11¾	10½	Rangata Nyuki . . .	Major A. E. Smith.
23	11¾	8¼	E. C. Africa . . .	Sir Edmund G. Loder, Bart.
-22¾	10¾	11¾	E. of Victoria Nyanza . .	Paris Museum.

**JACKSON'S HARTEBEEST (*Bubalis jacksoni*)—continued.**

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
22 $\frac{1}{2}$	10 $\frac{3}{4}$	10 $\frac{3}{4}$	E. C. Africa . . .	Capt. E. J. Tickell.
22 $\frac{3}{8}$	10 $\frac{3}{4}$	11	E. of Victoria Nyanza .	Col. F. D. Lugard, C.B., D.S.O.
22	11	11	E. C. Africa . . .	T. E. Buckley.
21	10 $\frac{1}{2}$	9 $\frac{1}{2}$	Do. . . .	Julius Jeppe.
20 $\frac{3}{4}$	11 $\frac{1}{2}$	7 $\frac{3}{8}$	Do. . . .	Capt. E. J. Tickell.
19 $\frac{1}{2}$	11 $\frac{1}{2}$	7 $\frac{1}{2}$	Do. . . .	Lord Delamere.
♀ 18 $\frac{1}{4}$	8	5 $\frac{7}{8}$	Uganda . . . .	Col. Trevor Ternan.
♀ 16 $\frac{3}{4}$	8	9 $\frac{3}{8}$	E. C. Africa . . .	F. J. Jackson, C.B.
♀ 16 $\frac{3}{4}$	8 $\frac{1}{2}$	9 $\frac{1}{2}$	Do. . . .	Julius Jeppe.
♂ 16 $\frac{1}{2}$	7 $\frac{3}{4}$	4 $\frac{1}{2}$	Do. . . .	Mr. Justice Hopley.



Skull and Horns of Hybrid Hartebeest. Shot by Major C. H. Villiers.

**HYBRID HARTEBEEST (presumed between *Bubalis cokei* and *jacksoni*).**

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
19 $\frac{1}{2}$	10 $\frac{1}{4}$	9 $\frac{1}{4}$	Lake Naraku . . . .	J. Ponsonby.
18 $\frac{1}{4}$	10	9	Mau Plateau . . . .	Major C. H. Villiers.
17 $\frac{1}{4}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	West of Eldoma Ravine .	G. E. Smith.





Head of Lichtenstein's Hartbeest.

**LICHTENSTEIN'S HARTEBEEST** (*Bubalis lichtensteini*).

Horn-pedicle very short and broad, and the horns themselves much curved inwards towards one another below the terminal backward inclination. Height at shoulder about 50 inches, weight about 300 lbs. General colour tawny fulvous, becoming more rufous along the back, with the chin, tail-tuft, and front of cannon-bones black.

*Distribution*.—East Africa north of the Sabi River, throughout Nyasaland and Mozambique to Usagara.

*Godonko* of Zambesia.

*Inkulando* of the Mashonas.

*Kokotombwi* in Barotseland.

*Konze* in the Chilala and Chibisa countries.

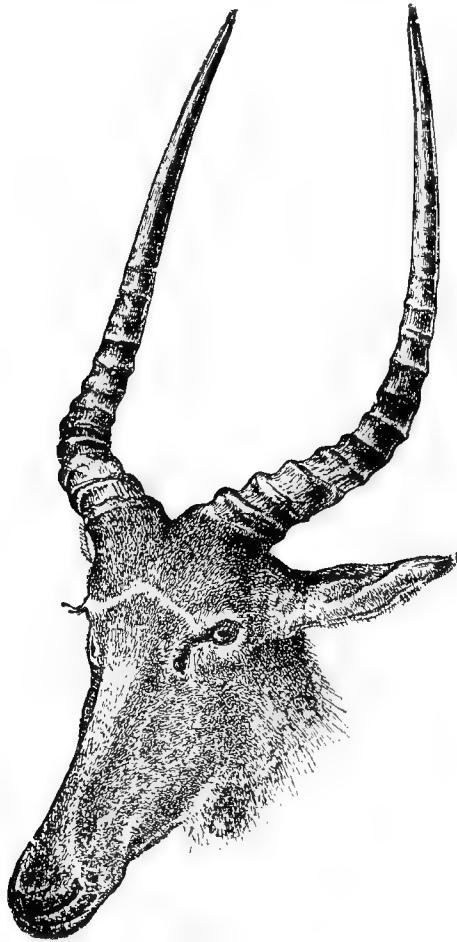
*Ngondo* in the Chinyanja.

LICHTENSTEIN'S HARTEBEEST (*Bubalis lichtensteini*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-22 $\frac{7}{8}$	11	7 $\frac{7}{8}$	?	Mr. Justice Hopley.
-22 $\frac{3}{4}$	...	...	Nyasaland	F. Watkinson.
-21 $\frac{3}{4}$	10 $\frac{3}{4}$	9	?	Mr. Justice Hopley.
21 $\frac{1}{2}$	12 $\frac{1}{2}$	9	Batoka Plateau .	F. Smitheman.
-21 $\frac{1}{2}$	...	...	Batokaland .	R. T. Coryndon.
21	12 $\frac{1}{4}$	8 $\frac{3}{4}$	Barotseland	H. Timmins.
-21	...	...	?	O. R. Dunell.
-20 $\frac{3}{4}$	12 $\frac{3}{8}$	7 $\frac{3}{8}$	Portuguese East Africa .	F. Vaughan Kirby.
20 $\frac{3}{4}$	...	...	?	Julius Jeppe.
20 $\frac{5}{8}$	13	6	Fort Johnstone, B.C.A.	C. C. Bowring.
-20 $\frac{1}{16}$	11 $\frac{1}{16}$	7 $\frac{5}{16}$	British Central Africa .	A. S. Hamilton.
20 $\frac{1}{8}$	12 $\frac{1}{2}$	10 $\frac{1}{2}$	Congo Free State .	Julius Jeppe.
20	12 $\frac{1}{8}$	8	Wami River, East Africa	Sir John Kirk, K.C.B.
20	13 $\frac{1}{4}$	8	Fort Hill, B.C.A.	John Yule.
19 $\frac{1}{2}$	11 $\frac{1}{2}$	8 $\frac{1}{8}$	S.E. Africa .	Hon. Walter Rothschild.
-19 $\frac{1}{2}$	11 $\frac{3}{4}$	8 $\frac{1}{2}$	British Central Africa .	F. Vaughan Kirby.
19 $\frac{1}{4}$	10 $\frac{3}{8}$	6 $\frac{5}{8}$	East Africa .	Sir John Kirk, K.C.B.
19	12	4 $\frac{1}{2}$	Liwondes, B.C.A.	C. C. Bowring.
19	11 $\frac{3}{4}$	5 $\frac{1}{2}$	Pungwe .	J. W. Allen.
19	11 $\frac{1}{2}$	4 $\frac{7}{8}$	East Africa .	British Museum.
-18 $\frac{7}{8}$	11 $\frac{1}{2}$	7 $\frac{3}{4}$	Barotseland .	F. Aitkens.
18 $\frac{3}{4}$	12	5 $\frac{3}{4}$	Batoka Plateau, Northern Rhodesia	F. Smitheman.
18 $\frac{3}{4}$	12	8 $\frac{1}{4}$	Barotseland .	Major H. J. Gould-Adams, C.B., C.M.G.
18 $\frac{5}{8}$	11 $\frac{3}{8}$	3 $\frac{1}{8}$	Manica Plateau	F. C. Selous.
18 $\frac{1}{2}$	12 $\frac{3}{4}$	4 $\frac{3}{4}$	Pungwe .	Hon. T. Thynne.
18 $\frac{1}{2}$	10 $\frac{1}{4}$	5	S.E. Africa	F. C. Selous, British Museum.
18 $\frac{1}{2}$	13 $\frac{1}{2}$	6	E. Mashonaland .	A. Neilson.
18 $\frac{1}{2}$	13	2 $\frac{1}{2}$	Songwe, Nyasaland .	James Yule.
18 $\frac{1}{4}$	12	8	Pangani, East Africa	General Sir Lloyd W. Matthews.

LICHTENSTEIN'S HARTEBEEST (*Bubalis lichtensteini*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
18 $\frac{1}{4}$	11 $\frac{1}{4}$	5 $\frac{1}{8}$	Wami River, East Africa .	F. J. Jackson.
18 $\frac{1}{4}$	12	6 $\frac{1}{2}$	Pungwe . . .	R. K. Micklethwait.
-18 $\frac{1}{4}$	12	6 $\frac{1}{2}$	Beira . . . . .	Dr. Percy Rendall.
18	12	3 $\frac{3}{4}$	British Central Africa . .	J. E. Gough.
-18	12 $\frac{3}{4}$	8 $\frac{3}{8}$	Nyasaland . . . . .	Major P. W. Forbes.
-18	...	...	Beira . . . . .	Cape Town Museum.
-18	12 $\frac{1}{2}$	6	East Central Africa	James J. Harrison.
17 $\frac{1}{2}$	11 $\frac{3}{4}$	5 $\frac{1}{4}$	Pungwe . . . . .	C. C. Gouldsmith.
17 $\frac{1}{2}$	12	6 $\frac{1}{2}$	Do. . . . .	H. R. Holden.
-17 $\frac{1}{2}$	11	3 $\frac{3}{4}$	Do. . . . .	A. M. Naylor.
-17 $\frac{3}{8}$	11 $\frac{3}{8}$	9 $\frac{1}{16}$	East Africa . . . . .	Paris Museum.
17 $\frac{1}{4}$	12 $\frac{1}{4}$	3 $\frac{3}{8}$	Maskanala	Hon. K. Campbell.
17	12 $\frac{3}{4}$	5 $\frac{5}{8}$	Pungwe . . . . .	Capt. F. H. Lehmann.
17	11	4 $\frac{3}{8}$	Lower Shiré . . . . .	Staff-Surgeon J. Dowson, R.N.
17	10	4 $\frac{3}{4}$	East Africa . . . . .	Dublin Museum.
-17	11 $\frac{1}{2}$	5 $\frac{1}{2}$	Pungwe . . . . .	Julius Jeppe.
-17	8 $\frac{1}{2}$	2 $\frac{1}{2}$	Do. . . . .	A. Ohlsson.
16 $\frac{5}{8}$	11 $\frac{5}{8}$	6 $\frac{5}{8}$	River Sabi, Mashonaland .	F. C. Selous, British Museum.
♀ 15	8 $\frac{7}{8}$	4 $\frac{7}{8}$	Do. . . . .	Do.
-♀ 15	7 $\frac{5}{8}$	5 $\frac{3}{8}$	Portuguese East Africa .	F. Vaughan Kirby.
♀ 12 $\frac{1}{4}$	7	5 $\frac{1}{2}$	? . . . . .	Julius Jeppe.



Head of Hunter's Hartebeest. From a specimen shot by H. C. V. Hunter.

**HUNTER'S HARTEBEEST (*Damaliscus hunteri*).**

With this species we come to a group of antelopes closely allied to the true hartebeests, but in which the frontal region is not elevated into a horn-pedicle, while the horns themselves form in most cases a lyrate or simple curve, and the face is of medium length. In the present species the slender horns are indeed doubly curved, although without the sudden angulation of the true hartebeests. They slant upwards and outwards, then bend downwards, while their long points are

directed upwards. Colour uniform rufous, with a chevron on the face, the inner surface of the ears, and the tail-tuft white. Height at shoulders about 4 feet, and the build light and graceful.

*Distribution*.—Southern Somaliland to north bank of Tana River. Discovered by H. C. V. Hunter in 1888.

Length.		Circum- ference.	Tip to Tip.	Locality.	Owner.
On front curve.	Straight.				
26 $\frac{1}{2}$	22	8 $\frac{1}{8}$	12 $\frac{1}{2}$	Bank of the Tana River, East Africa	Sir Robert Harvey, Bart.
24 $\frac{7}{8}$	...	8 $\frac{1}{8}$	15 $\frac{1}{2}$	Do.	H. C. V. Hunter.
24 $\frac{5}{8}$	21 $\frac{1}{4}$	8 $\frac{3}{8}$	9 $\frac{3}{4}$	Do.	Sir Robert Harvey, Bart.
♀ 21	...	5 $\frac{3}{4}$	7	Do.	F. H. Barber.
20 $\frac{1}{8}$	...	5 $\frac{5}{8}$	8 $\frac{7}{8}$	Do.	Hon. Walter Rothschild.



Head of Korrigum.

**KORRIGUM or SENEGAL HARTEBEEST (*Damaliscus korrigum*).**

Horns with a single slightly lyrate curve. Size medium. General colour reddish, with patches on the face, shoulders, upper part of fore-legs, hips, and thighs, and the tail-tuft black; no dark markings on back and feet.

*Distribution*.—Senegambia and the interior of West Africa. Discovered by Col. Denham and Capt. Clapperton in 1822-24.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
$22\frac{1}{2}$	$8\frac{3}{4}$	$11\frac{3}{4}$	Gambia . . .	Julius Jeppe.
$-21\frac{5}{8}$	$9\frac{1}{4}$	$15\frac{3}{8}$	Do. . . .	Paris Museum.
$-21\frac{3}{8}$	$9\frac{1}{8}$	$11\frac{3}{4}$	Do. . . .	Dr. P. Rendall, British Museum.
19	$6\frac{1}{4}$	10	Do. . . .	Late Earl of Derby, British Museum.
$18\frac{3}{4}$	$9\frac{1}{8}$	11	Do. . . .	Do.
$-15\frac{1}{2}$	7	8	Do. . . .	Dublin Museum.

**TIANG (*Damaliscus korrigum tiang*).**

Apparently only a local race of the korrigum, from which it is distinguished, so far as at present known, by its slightly inferior dimensions, and certain differences in the black markings on the face and limbs.

*Distribution*.—Sennar, Kordofan, and Bahr-el-Ghazal.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
$\varnothing 20\frac{1}{4}$	$6\frac{3}{4}$	$6\frac{7}{8}$	Bahr-el-Ghazal . .	The late Consul Petherick, British Museum.
$10\frac{1}{8}$	$6\frac{3}{4}$	$7\frac{7}{8}$	Do. . . .	Do.



Head of Topi. From a specimen shot by A. H. Neumann.

**TOPI (*Damaliscus corrugum jimela*).**

The southern representation of the last, distinguished by its still smaller size (height at shoulder, 43-44 inches), shorter and more slender horns, and the somewhat brindled appearance of the coat, due to patches of longer hairs on the otherwise short fur. General colour a peculiar purple-brown, with the dark markings less defined and less black than in *D. corrugum typicus*. Weight about 250 lbs.

*Distribution*.—British East Africa from the Juba to the Sabuki River, and thence to Uganda and Uniamwezi.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
21	8	6½	North End of Lake Rudolph	H. Andrew.
19½	6½	3¾	East Africa . . .	H. C. V. Hunter.
19	7½	8	Do. . . .	Rowland Ward.
18¾	8½	6½	North End of Lake Rudolph	A. H. Neumann.

TOPI (*Damaliscus corrugum jimela*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
18½	8¾	8½	East Africa	Sir Edmund G. Loder, Bart.
18½	8¾	5¼	Do. . . .	J. Carr Saunders.
18½	7⅝	6	North End of Lake Rudolph	Julius Jeppe.
18⅝	6¾	5⅞	East Africa	Sir Robert Harvey, Bart.
18	8⅛	5¾	Do. . . .	F. J. Jackson, C.B.
17½	8	7¼	Uganda . .	Hon. Walter Rothschild.
17⅝	7¾	5	East Africa	H. C. V. Hunter.
17	8	7	Do. . . .	Sir Robert Harvey, Bart.
♀ 17	5⅜	4½	North End of Lake Rudolph	A. H. Neumann.
16⅞	7	5½	Do.	F. J. Jackson, C.B.
16⅞	7¼	4½	East Africa . . .	Capt. R. A. J. Montgomerie, C.B., R.N.
16¾	6⅛	5½	Coast Region between Lamu and River Juba	Sir John Kirk, K.C.B.
16¾	5⅞	5	River Juba . . .	Do.
15⅝	7⅝	5¾	Coast Region between Lamu and River Juba	Hon. Walter Rothschild.
15½	8½	7	Do.	E. Gedge.
15½	7⅝	5⅝	East Africa . . .	F. H. Barber.
-14½	6¾	6¾	Coast Region between Lamu and River Juba	Mr. Justice Hopley.
-14¼	5	9¾	?	Berlin Museum.





Head of Bontebok.

**BONTEBOK** (*Damaliscus pygargus*).

Distinguished from the preceding species of the genus by the white blaze on the face, which is continuous from the horns to the nose. Height at shoulder about 40 inches. Weight about 200 lbs. Colour of fore part of back rufous fawn darkening into blackish on the rump, flanks, shoulders, front of limbs, and tail-tuft; rump, upper half of tail, under parts, and much of hinder surface of limbs white.

The curious pied marking of the bontebok, its snow-white face, belly, legs, and rump, and the glaze-like, purplish-lilac gloss of the upper part of the coat—which may be described as chestnut upon the neck and warm purplish-brown upon the body—are very remarkable. The horns very nearly resemble those of the blesbok in shape, but the colour is much darker. The blesbok and bontebok formerly gave great sport to the Boers and European hunters. Both of these blaze-faced antelopes run steadily up-wind, “carrying their broad white noses close to the ground like a pack of harriers in full cry.”

*Distribution*.—Cape Colony, south of the Vaal River; now nearly exterminated. Although formerly abounding in tens of thousands on the Karoos of Cape Colony and the plains of the Orange Free State, bontebok are now reduced to a single herd carefully preserved on some flats on the estate of Mr. Vander-Byl, near Swellendam, in the south of Cape Colony.

BONTEBOK (*Damaliscus pygargus*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
16 $\frac{3}{8}$	6 $\frac{3}{4}$	9 $\frac{1}{8}$	?	British Museum.
16 $\frac{1}{4}$	6 $\frac{5}{8}$	8 $\frac{3}{4}$	Bredasdorp .	A. C. Campbell.
<sup>1</sup> 15 $\frac{7}{8}$	6 $\frac{7}{8}$	8	Do. .	F. C. Selous, British Museum
15 $\frac{1}{2}$	6 $\frac{1}{2}$	8 $\frac{1}{2}$	Do. .	Hon. Walter Rothschild.
-15 $\frac{1}{2}$	6 $\frac{1}{2}$	8 $\frac{1}{2}$	Do. .	Dr. W. P. Y. Bainbrigge.
-15 $\frac{1}{2}$	6 $\frac{1}{2}$	5	Do. .	A. Ohlsson.
15 $\frac{1}{2}$	6 $\frac{1}{2}$	9 $\frac{3}{8}$	Do. .	A. C. Humbert.
-15 $\frac{1}{2}$	6 $\frac{3}{8}$	9 $\frac{3}{4}$	Do.	Mr. Justice Hopley.
15 $\frac{3}{8}$	6 $\frac{1}{8}$	8 $\frac{1}{8}$	Cape Colony	Sir Victor Brooke's Collection.
-15 $\frac{5}{16}$	6 $\frac{1}{8}$	7 $\frac{1}{4}$	Bredasdorp	Dr. Percy Rendall.
15	6 $\frac{3}{4}$	8 $\frac{1}{2}$	Cape Colony	F. C. Selous.
15	6 $\frac{3}{8}$	7 $\frac{5}{8}$	Do.	Capt. F. Cookson.
15	6 $\frac{1}{4}$	6 $\frac{3}{4}$	Bredasdorp . .	W. S. Curtis.
-15	6 $\frac{1}{4}$	7 $\frac{5}{8}$	?	Julius Jeppe.
-15	...	...	?	C. T. Jones.
-14 $\frac{1}{2}$	...	...	Bredasdorp .	Cape Town Museum.
-14 $\frac{1}{2}$	6 $\frac{1}{2}$	8 $\frac{3}{8}$	Do.	Julius Jeppe.
15	6 $\frac{3}{4}$	8 $\frac{1}{2}$	Cape Colony	F. C. Selous.
14 $\frac{1}{2}$	6 $\frac{1}{4}$	8 $\frac{1}{4}$	Bredasdorp .	Hon. Walter Rothschild.
- ♀ 14 $\frac{1}{4}$	5 $\frac{3}{8}$	7 $\frac{5}{8}$	Do. .	Julius Jeppe.
14 $\frac{1}{8}$	5 $\frac{3}{8}$	7 $\frac{3}{8}$	Cape Colony . . .	F. C. Selous.
♀ 13 $\frac{1}{2}$	5 $\frac{1}{4}$	7 $\frac{5}{8}$	Bredasdorp . . .	Julius Jeppe.
<sup>2</sup> ♀ 13 $\frac{1}{2}$	5 $\frac{1}{4}$	7 $\frac{1}{2}$	Do. . . .	F. C. Selous, British Museum.

<sup>1</sup> Weight, 200 lbs.; height, 41 $\frac{1}{2}$  at shoulder.<sup>2</sup> Height at shoulder, 36 $\frac{3}{4}$ .

**BLESBOK** (*Damaliscus albifrons*).

*Nunni* of the Bechuanas.

Closely allied to the last (of which it may be only a local race), but with less black on the body and limbs, the blaze divided by a white line between the eyes, and the rings on the horns yellowish.

Formerly to be numbered by hundreds of thousands, the beautiful blesbok has in the last twenty years grown very scarce indeed. It can now scarcely be reckoned as a South African beast of chase, being only met with in small numbers on a few Boer farms in the Transvaal and the Orange Free State. Yet, thirty or forty years ago, blesboks often literally darkened the face of the land with their innumerable legions. The north of the Cape Colony, Griqualand West, the Free State, and the plains of the Western and Southern Transvaal may be described as the true home of this charming antelope in the old days. In 1848 Gordon Cumming speaks of a sight he beheld in the blesbok country. "The plains," he says, "exhibited one purple mass of graceful blesboks, which extended without a break as far as my eyes could strain; the depth of their vast legions covered a breadth of about six hundred yards." What a contrast with the scarcity of the present day!

*Distribution*.—Northern plains of Cape Colony, Orange Free State, Transvaal, and Bechuanaland; now nearly exterminated.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
18 $\frac{1}{2}$	5 $\frac{3}{4}$	12 $\frac{1}{2}$	South Africa . . .	Sir Edmund G. Loder, Bart.
-18	6 $\frac{1}{2}$	10 $\frac{5}{8}$	Orange Free State . .	F. R. N. Findlay.
17 $\frac{1}{2}$	6 $\frac{3}{4}$	7	Transvaal	Abe Bailey.
-17 $\frac{1}{2}$	7	7 $\frac{1}{2}$	Do. . . .	Dr. W. P. Y. Bainbrigge.
-16 $\frac{7}{8}$	7	7 $\frac{1}{2}$	Orange Free State . .	Count E. Hoyos.
-16 $\frac{3}{8}$	6 $\frac{3}{8}$	9 $\frac{1}{2}$	Do. . . .	Julius Jeppe.
-♀ 16 $\frac{1}{2}$	6 $\frac{1}{4}$	8 $\frac{3}{4}$	Do. . . .	Do.
-16 $\frac{1}{2}$	...	...	?	O. R. Dunell.
16 $\frac{1}{2}$	7	8	Orange Free State .	Capt. H. D. Livingstone.
16 $\frac{1}{4}$	6 $\frac{3}{8}$	7 $\frac{1}{4}$	?	Capt. G. F. Henry.
16 $\frac{1}{8}$	6 $\frac{1}{2}$	8 $\frac{1}{8}$	South Africa . . .	Sir Edmund G. Loder, Bart.
16	6 $\frac{3}{4}$	8 $\frac{3}{8}$	?	Capt. Lord Douglas Compton.

**BLESBOK** (*Damaliscus albifrons*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner
-16	...	...	?	Cape Town Museum.
-15 $\frac{7}{8}$	6 $\frac{1}{2}$	5 $\frac{1}{2}$	?	Mr. Justice Hopley.
-15 $\frac{3}{4}$	...	...	?	C. T. Jones.
15 $\frac{5}{8}$	6 $\frac{3}{4}$	5 $\frac{1}{2}$	?	A. Beit.
15 $\frac{1}{2}$	6 $\frac{7}{8}$	8 $\frac{1}{4}$	?	Capt. F. H. Lehmann.
15 $\frac{1}{2}$	5 $\frac{1}{8}$	7 $\frac{1}{2}$	?	C. H. Akroyd.
15 $\frac{1}{4}$	6 $\frac{1}{2}$	<sup>1</sup> 10	Driefontein, O.F.S.	F. C. Selous, British Museum.
15 $\frac{1}{4}$	6 $\frac{1}{8}$	5 $\frac{3}{4}$	South Africa . . .	Hon. Walter Rothschild.
15 $\frac{1}{4}$	6 $\frac{1}{8}$	6 $\frac{1}{2}$	Zululand . . .	Major-Gen. Sir Arthur Ellis, K.C.V.O.
15 $\frac{1}{8}$	6 $\frac{1}{2}$	7 $\frac{3}{4}$	South Africa . . .	Hon. Walter Rothschild.
-15	6 $\frac{1}{4}$	8 $\frac{1}{2}$	?	Julius Jeppe.
♀ 15	5 $\frac{1}{4}$	...	Orange Free State . .	Capt. H. D. Livingstone.
14 $\frac{1}{2}$	6 $\frac{1}{8}$	8 $\frac{3}{4}$	Cape Colony . . .	H.R.H. the Duke of Saxe-Coburg and Gotha.
-14 $\frac{1}{8}$	5 $\frac{1}{8}$	7	Transvaal . . .	F. Vaughan Kirby.
14	6 $\frac{3}{8}$	7 $\frac{1}{2}$	Do. . .	Sir Victor Brooke's Collection.
14	6 $\frac{1}{2}$	7 $\frac{1}{2}$	Heidelberg . . .	R. H. Sawyer.
-14	8 $\frac{3}{4}$	6 $\frac{1}{4}$	Transvaal . . .	T. E. Buckley.
-14	6	7 $\frac{1}{2}$	?	A. Ohlsson.
-14	7 $\frac{1}{4}$	12 $\frac{7}{8}$	?	Mr. Justice Hopley.
14	4 $\frac{7}{8}$	6 $\frac{1}{2}$	?	Dr. W. P. Y. Bainbrigge.
13 $\frac{1}{2}$	5	5 $\frac{1}{4}$	?	F. C. Selous.
12 $\frac{3}{4}$	4 $\frac{5}{8}$	7 $\frac{1}{2}$	Driefontein, O.F.S. .	F. C. Selous, British Museum.

<sup>1</sup> Weight, 280 lbs. Height at shoulder, 39 $\frac{1}{2}$  inches.



Head of Sassaby. From a specimen shot in Mashonaland by F. C. Selous.

**SASSABY or BASTARD HARTEBEEST (*Damaliscus lunatus*).**

*Incolomo* of the Matabele.

*Ingallowana* of the Basutos.

*Inkweko* of the Masubias.

*Inyundo* of the Makalakas.

*Kaboli* in the Barotse country and  
Lake Ngami country.

*Luchu* of the Masaras.

*M'tengo* in the Chilala and Chibisa  
countries.

*Mzanci* of the Swazis.

*Mzansi* of all Zulu tribes

*Unchuru* of the Makubas.

Horns starting obliquely outwards, with a single upward and backward lunate curve. Height at shoulder nearly 4 feet. General colour dark chestnut rufous, with the face, shoulders, hips, upper portions of limbs, and tail-tuft black, and the region of the groin and margin of the ears white.

The sassaby has the reputation—in the opinion of all hunters who have tested its speed—of being the fleetest and most enduring animal in South Africa. Were it not that this handsome antelope, in common with its near relative the Cape hartebeest, happens to be lacking in presence of mind, it would very seldom fall to the sportsman's rifle. The sassaby is not difficult to circumvent. A troop can be often

turned from its course, or brought to a halt, by firing a bullet or two over the heads of the fleeing animals. Or if the leader of the troop can be wounded and turned out, the rest of the herd become confused and now and again offer easy shots. Like the Cape hartebeest the sassaby has extremely drooping quarters. The skin of one of these antelopes, freshly killed, is very beautiful, the wonderful smoothness and the brilliant purplish bloom of the coat being specially noticeable.

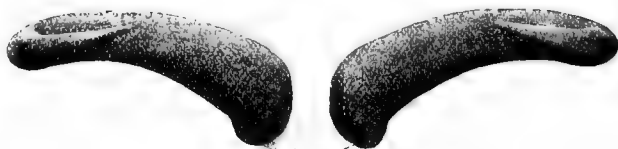
*Distribution.*—South-East Africa, from north of the Orange River to the Zambesi, and westward to Lake Ngami, and northwards to British Central Africa (see below).

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
15 $\frac{3}{4}$	7 $\frac{1}{2}$	15 $\frac{1}{2}$	Mashonaland .	Sir John Willoughby, Bart.
15 $\frac{5}{8}$	7 $\frac{1}{2}$	11 $\frac{3}{4}$	?	Sir Edmund G. Loder, Bart.
15 $\frac{1}{2}$	8 $\frac{1}{8}$	12 $\frac{1}{2}$	Daka, S. of Victoria Falls	F. C. Selous.
15 $\frac{1}{4}$	8	12 $\frac{1}{4}$	S.E. Africa .	The late Sir Andrew Smith, British Museum.
-15 $\frac{1}{4}$	7 $\frac{1}{8}$	12 $\frac{3}{4}$	Do. .	Julius Jeppe.
15 $\frac{3}{8}$	7 $\frac{3}{8}$	12	Do. .	Sir Victor Brooke's Collection.
15	8 $\frac{3}{8}$	11 $\frac{5}{8}$	Do. . . .	G. Richards.
15	7	11	Do. . . .	A. Moseley.
14 $\frac{7}{8}$	8	10	Lebombo Mountains	F. Vaughan Kirby.
14 $\frac{3}{4}$	7 $\frac{3}{8}$	11 $\frac{5}{8}$	Pungwe . . .	J. W. Allen.
14 $\frac{1}{4}$	7 $\frac{1}{2}$	12	North of Delagoa Bay	A. Cameron.
-14 $\frac{1}{2}$	8	15 $\frac{1}{4}$	Matabeleland .	J. Brander Dunbar.
-14 $\frac{1}{2}$	8	15	S.E. Africa .	James J. Harrison.
14 $\frac{1}{2}$	7 $\frac{5}{8}$	11	Mashonaland .	F. C. Selous, British Museum.
14 $\frac{1}{2}$	7 $\frac{7}{8}$	11 $\frac{1}{4}$	Do. .	Do.
14 $\frac{1}{2}$	7	10	Pungwe .	Capt. G. F. Henry.
14 $\frac{1}{2}$	7	10	Matabeleland	Rev. Dr. R. J. Nevin.
-9 14 $\frac{1}{2}$	6	9	Do. . . .	Dr. W. P. Y. Bainbrigge.
14 $\frac{1}{2}$	7 $\frac{3}{8}$	13	Do. . . .	W. Van Ness.
<sup>1</sup> 14 $\frac{1}{2}$	7 $\frac{1}{2}$	12 $\frac{1}{2}$	Bangweolo Flats, British Central Africa	F. Smitheman.
-14 $\frac{1}{2}$	8 $\frac{1}{4}$	11	Pungwe . . .	Count E. Hoyos.

<sup>1</sup> The locality noted is of great interest, as indicating the existence of this species north of the Zambesi.

**SASSABY or BASTARD HARTEBEEST (*Damaliscus lunatus*)—continued.**

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
14 $\frac{1}{2}$	7 $\frac{1}{2}$	10 $\frac{1}{2}$	Mashonaland	Hon. Walter Rothschild.
-14 $\frac{1}{4}$	7 $\frac{1}{2}$	13	S.E. Africa .	Dr. W. P. Y. Bainbrigge.
14 $\frac{1}{4}$	8	14	Matabeleland .	Hon. R. A. Ward.
-14 $\frac{1}{4}$	...	...	Do. .	C. T. Jones.
14 $\frac{1}{8}$	6 $\frac{3}{4}$	9 $\frac{5}{8}$	Pungwe	C. M. Swire.
14	7 $\frac{1}{4}$	10	Do. .	Marquis of Hamilton.
-14	6 $\frac{3}{4}$	12 $\frac{7}{8}$	Do. .	A. Beit.
-14	8	12 $\frac{1}{2}$	Do. .	T. E. Buckley.
14	7 $\frac{1}{4}$	10 $\frac{3}{4}$	Do. .	Hon. T. Thynne.
14	7	11 $\frac{1}{2}$	Do. .	R. K. Micklethwait.
♀ 13 $\frac{7}{8}$	6 $\frac{5}{8}$	11 $\frac{1}{2}$	Mashonaland .	F. C. Selous, British Museum.
♀ 13 $\frac{7}{8}$	6 $\frac{1}{4}$	12 $\frac{3}{8}$	Do. .	H. and C. Beddington.
♀ 13 $\frac{1}{2}$	...	...	Lebombo Mts. .	F. Vaughan Kirby.
♀ 13 $\frac{1}{2}$	...	11 $\frac{7}{8}$	Mabonga River .	H. M. Barber.
♀ 13	6	13 $\frac{3}{4}$	Matabeleland .	Lord Brackley.



Horns of Brindled Gnu. From Julius Jeppe's specimen.

### BRINDLED GNU (*Connochætes taurinus*).

*Ee-vumba* of the Makalakas.

*Inkongone* of the Swazis and Zulus.

*Ikokoni* of the Basutos.

*Minyumbwe* of the Batongas.

*Inkone-kone* of the Amandebele.

*Numbo* of the Masubias.

*Unzozo* of the Makubas.

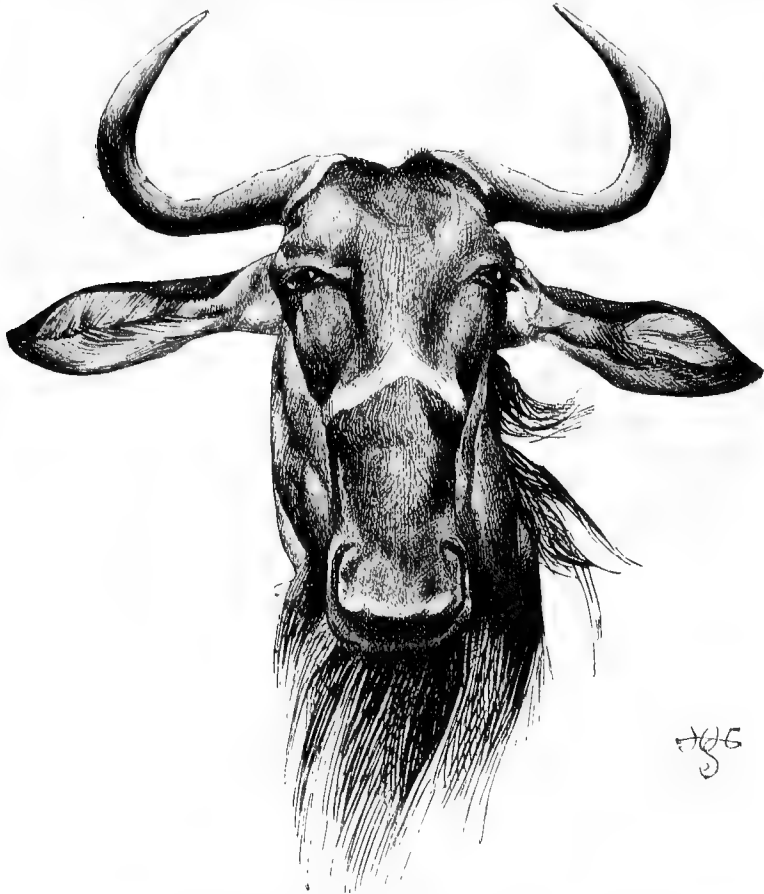
From their near relatives the hartebeests the gnus, or wildebeests, are distinguishable at a glance by their grotesque shape and smooth horns, as they also are by their habits. The short, broad, and massive head has a blunt and bristly muzzle, and tufts of coarse hair on the forehead and chin; the chin-tuft also extending on to the throat. The horns, which are placed on the crown of the head, are approximated at their bases, especially in old bulls, and are nearly smooth, more or less flattened at the bases, but almost cylindrical at the tips; the curvature being at first outwards, or outwards and downwards, and then bending upwards at the tips. An abundant mane of stiff, upright hair clothes the back of the neck; and the tail is covered with longer and softer hairs, reaching considerably below the hocks. It is from the equine form of the tail that these animals were long popularly known by the name of "horned horse." The hoofs are characterised by their narrow form.

The blue wildebeest, as this species is called at the Cape, is a large animal, standing about 4 feet 3 inches at the shoulder. Its most characteristic features are the outward direction of the horns, which are but little expanded at the base, and not unlike those of a buffalo, the uniformly black tail, and the absence of long hair on the lower part of the chest and belly. The general colour varies from grizzled roan to blackish slaty brown, with more or less distinct vertical dark stripes on the sides of the neck and fore-quarters; these stripes being most conspicuous in the lighter-coloured specimens. Typically, the fringe of hair on the throat, like the mane and tuft on the forehead, is black.

*Distribution*.—Formerly ranging from the north of the Orange River for a long distance up East Africa, the brindled gnu is now practically



exterminated in the Orange Free State and the adjacent districts south of the Limpopo. It is, however, still to be met with in parts of Griqualand West and of the Kalahari, as well as in British Bechuana-land ; while in Khama's country and Rhodesia, and thence north-



Head of Bull Nyasaland Gnu.

From Sir H. H. Johnston's *British Central Africa*, published by Messrs. Methuen.

wards through Central and East Africa, it is comparatively abundant, or, at all events, was so before the ravages of the rinderpest, and it also occurs in Mozambique. In spite of its clumsy and ungainly appearance, the brindled gnu is a rapid mover ; and even when severely wounded will not unfrequently succeed in making good its escape from the mounted hunter.

It is generally distributed in South-East Central Africa, and north of the Zambesi is represented by the Nyasaland gnu (*C. taurinus johnstoni*), which Mr. F. Vaughan Kirby found also in the Mozambique province.

Widest outside.	Widest inside.	Length on front curve.	Breadth of palm.	Tip to Tip.	Locality.	Owner.
...	29	31	<sup>1</sup> 13 $\frac{1}{4}$	15 $\frac{1}{4}$	Sabi Flats	Dr. R. P. Mitchell.
-33 $\frac{1}{2}$	28 $\frac{3}{4}$	...	6 $\frac{1}{2}$	24	Do.	B. Secretan.
32 $\frac{1}{2}$	29	20	4	26 $\frac{1}{2}$	P. E. Africa	F. Vaughan Kirby.
...	28 $\frac{1}{2}$	21 $\frac{5}{8}$	5 $\frac{1}{4}$	17 $\frac{3}{8}$	Matabeleland	G. H. M. Banks.
...	28 $\frac{1}{2}$	20 $\frac{3}{4}$	5	16	Pungwe	C. C. Gouldsmith.
<sup>2</sup> 31 $\frac{1}{2}$	28	...	8	18 $\frac{1}{8}$	P. E. Africa	F. Vaughan Kirby.
31	...	23	<sup>1</sup> 11 $\frac{1}{2}$	19 $\frac{1}{2}$	S.E. Africa	The late J. A. Nicolls.
30 $\frac{1}{2}$	...	...	...	...	Do.	F. C. Selous.
30 $\frac{1}{2}$	...	...	...	17	Do.	F. H. Barber.
...	27 $\frac{1}{2}$	23 $\frac{1}{2}$	4 $\frac{3}{4}$	16 $\frac{3}{4}$	?	Julius Jeppe.
...	-27	21	4 $\frac{1}{2}$	20 $\frac{1}{2}$	?	Mr. Justice Hopley.
...	-26 $\frac{3}{4}$	29	5	16 $\frac{3}{4}$	?	Julius Jeppe.
...	26 $\frac{1}{2}$	21 $\frac{1}{4}$	4 $\frac{5}{8}$	20 $\frac{1}{2}$	Matabeleland	Major R. Hayes-Sadler.
...	26 $\frac{1}{2}$	19 $\frac{1}{2}$	4 $\frac{3}{4}$	17	Do.	F. G. Shaw.
...	-26 $\frac{1}{2}$	31 $\frac{1}{2}$	...	17	Delagoa Bay	H. T. and A. H. Glynn.
30 $\frac{1}{2}$	26 $\frac{1}{2}$	22	4 $\frac{1}{2}$	20 $\frac{1}{2}$	Beira	Rowland Ward.
...	-26	31	4 $\frac{3}{4}$	21	Lydenburg	F. H. Barber.
...	26	22 $\frac{1}{4}$	6	18 $\frac{1}{8}$	Mababe Plain	F. C. Selous.
...	26	21 $\frac{1}{2}$	7	17 $\frac{1}{2}$	Pungwe	Frank Harris.
...	25 $\frac{1}{2}$	22	4 $\frac{1}{4}$	17	S. Africa	G. Richards.
...	♀ 25	22 $\frac{1}{4}$	4 $\frac{1}{2}$	10	P. E. Africa	F. Vaughan Kirby.
29	25 $\frac{1}{4}$	21	4 $\frac{1}{2}$	18 $\frac{3}{4}$	Zululand	Lieut.-Col. Hon. W. Coke.
-28 $\frac{1}{4}$	25	...	11	13	?	F. J. Newnham.
...	24 $\frac{3}{4}$	20 $\frac{3}{4}$	4 $\frac{3}{4}$	16 $\frac{3}{4}$	Pungwe	Capt. F. H. Lehmann.
...	-24 $\frac{1}{2}$	31 $\frac{3}{4}$	<sup>1</sup> 14	16 $\frac{1}{2}$	Sabi Flats	James J. Harrison.
...	24 $\frac{1}{2}$	20 $\frac{1}{2}$	5	17 $\frac{3}{4}$	Matabeleland	Rev. Dr. R. J. Nevin.

<sup>1</sup> Circumference.<sup>2</sup> Height at shoulder, 53 $\frac{1}{2}$ .

BRINDLED GNU (*Connochaetes taurinus*)—*continued*.

Widest outside.	Widest inside.	Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
..	24 $\frac{1}{2}$	20	4	17 $\frac{5}{8}$	Pungwe . . .	P. B. Vander-Byl.
..	24 $\frac{1}{2}$	21	4 $\frac{1}{2}$	15 $\frac{1}{2}$	Do. . . .	Marquis of Hamilton.
28 $\frac{5}{8}$	24 $\frac{1}{2}$	22	5 $\frac{1}{2}$	19 $\frac{1}{2}$	S. Africa . . .	Sir Edmund G. Loder, Bart.
..	24 $\frac{1}{2}$	15 $\frac{1}{2}$	4 $\frac{1}{8}$	19 $\frac{1}{2}$	Pungwe . . .	Ford G. Barclay.



Head of Brindled Gnu.

..	24 $\frac{1}{2}$	20 $\frac{3}{4}$	4 $\frac{1}{2}$	17 $\frac{1}{2}$	Barotseland . . .	H. Timmins.
..	23 $\frac{3}{4}$	19 $\frac{1}{2}$	4 $\frac{1}{2}$	16 $\frac{1}{2}$	Pungwe . . . .	H. R. Holden.
..	23 $\frac{3}{4}$	20	5 $\frac{1}{2}$	13 $\frac{3}{4}$	S. Africa . . .	C. D. Rudd.
..	23 $\frac{1}{2}$	19 $\frac{1}{4}$	<sup>1</sup> 11 $\frac{1}{8}$	17 $\frac{1}{8}$	? . . . . .	H. Atkinson.
...	23 $\frac{1}{2}$	21 $\frac{1}{2}$		18 $\frac{1}{2}$	S. Africa . . .	T. E. Buckley.
..	23 $\frac{1}{2}$	24 $\frac{5}{8}$	7	15 $\frac{1}{2}$	Beira . . . .	A. M. Naylor.
..	23 $\frac{1}{2}$	20 $\frac{1}{2}$	4 $\frac{5}{8}$	16 $\frac{1}{2}$	Mashonaland . .	J. A. Jameson.

<sup>1</sup> Circumference.

BRINDLED GNU (*Connochætes taurinus*)—*continued*.

Widest outside.	Widest inside.	Length on outside curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
...	23 $\frac{1}{2}$	20 $\frac{1}{2}$	<sup>1</sup> 12	14 $\frac{5}{8}$	Botletli River .	H. A. Bryden.
...	-23	22 $\frac{7}{8}$	4 $\frac{11}{16}$	17 $\frac{7}{16}$	North of Great Namaqualand	Th. Rehbock.
...	-23	...	<sup>1</sup> 13 $\frac{1}{2}$	14	?	A. Ohlsson.
...	-23	20	<sup>1</sup> 14 $\frac{1}{2}$	16 $\frac{1}{2}$	S. Africa .	Dr. W. P. Y. Bainbrigge.
...	-22 $\frac{5}{8}$	21 $\frac{7}{8}$	6 $\frac{1}{4}$	...	Pungwe . .	Count E. Hoyos.
...	20	18 $\frac{3}{4}$	4	13 $\frac{1}{8}$	Benguela, Angola	G. W. Penrice.
...	...	21	...	...	Damaraland .	Cape Town Museum.
...	♀ 17 $\frac{1}{2}$	18 $\frac{1}{4}$	<sup>1</sup> 8	8	?	Dr. W. P. Y. Bainbrigge.
...	27	19 $\frac{1}{2}$	4 $\frac{1}{2}$	15 $\frac{1}{2}$	Tushila Plains, B.C.A.	G. N. Barclay.
...	24 $\frac{1}{2}$	19	4	16 $\frac{3}{4}$	B.C.A. .	J. E. Gough.
...	22 $\frac{3}{4}$	18 $\frac{1}{2}$	4 $\frac{1}{2}$	15	Tushila Plains, B.C.A.	C. C. Bowring.
...	16 $\frac{1}{2}$	12 $\frac{1}{2}$	<sup>1</sup> 10	12	E.C.A. .	James J. Harrison.

<sup>1</sup> Circumference.



Head of White-Bearded Gnu.

**WHITE-BEARDED GNU** (*Connochoetes taurinus albojubatus*).Swahili name *Nyumbu*.

Apparently a local race of the brindled gnu, distinguished by its slightly paler coloration, and the yellowish white throat-fringe, a few whitish hairs being also mingled with the mane.

The widest part of the front of the horns is somewhat different from the corresponding portion of the typical variety, as will be seen by reference to the illustrations.

*Distribution*.—East Africa, Athi plains, Ukambani, north of Kilimanjaro.

Widest inside.	Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
<sup>2</sup> 27 $\frac{1}{2}$	22	6	15 $\frac{1}{2}$	East Africa . . .	Lord Delamere.
<sup>2</sup> 28	...	...	16	Do. . . .	Sir John Willoughby, Bart.
<sup>2</sup> 27	20	<sup>1</sup> 12	17	Do. . . .	R. P. Carroll.
26 $\frac{1}{4}$	22 $\frac{5}{8}$	...	18 $\frac{3}{4}$	Do. . . .	H. C. V. Hunter.
25 $\frac{3}{8}$	22 $\frac{7}{8}$	...	16 $\frac{1}{2}$	Do. . . .	F. J. Jackson, C.B.
25	20 $\frac{1}{2}$	<sup>1</sup> 12 $\frac{1}{2}$	12 $\frac{1}{2}$	Do. . . .	Rowland Ward.
24	20 $\frac{3}{8}$	...	15 $\frac{1}{8}$	Do. . . .	Sir Robert Harvey, Bart.
23 $\frac{1}{2}$	18 $\frac{1}{4}$	4 $\frac{1}{2}$	12	?	S. L. Hinde.

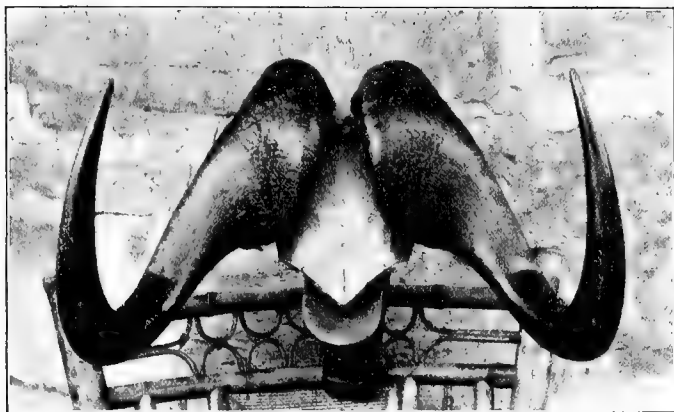
<sup>1</sup> Circumference.<sup>2</sup> Outside.

**WHITE-BEARDED GNU** (*Connochætes taurinus albojubatus*)—*continued*.

Widest inside.	Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
♂ 24	17	.	15	East Africa . .	W. Astor Chanler.
22 $\frac{1}{8}$	20	5 $\frac{1}{4}$	16 $\frac{1}{4}$	Athi Plains . .	E. Gedge.
21 $\frac{1}{8}$	19 $\frac{3}{4}$	5	13 $\frac{3}{4}$	East Africa . .	Capt. R. A. J. Montgomerie, C.B., R.N.
21 $\frac{1}{8}$	18 $\frac{1}{4}$	4	17 $\frac{1}{4}$	Athi Plains . .	Col. F. D. Lugard, C.B., D.S.O.
21 $\frac{1}{2}$	21	5 $\frac{1}{4}$	15 $\frac{1}{2}$	East Africa . .	Capt. J. W. Pringle.
21 $\frac{1}{4}$	21 $\frac{1}{16}$	<sup>1</sup> 12 $\frac{1}{4}$	17 $\frac{3}{4}$	Do. . .	Lionel Decle, Paris Museum.
21 $\frac{1}{2}$	19	4 $\frac{3}{4}$	15	Do. . .	E. J. L. Berkeley.
22	19	4	15 $\frac{1}{2}$	Do. . .	Henry Charrington.
♀ 19 $\frac{1}{2}$	15	3	13 $\frac{1}{2}$	Do. . .	Lord Delamere.
21 $\frac{1}{4}$	19 $\frac{5}{8}$	5 $\frac{3}{8}$	12 $\frac{1}{2}$	?	Hon. Walter Rothschild.
20 $\frac{1}{2}$	16 $\frac{1}{2}$	4	15 $\frac{1}{2}$	East Africa . .	Do.

<sup>1</sup> Circumference.<sup>2</sup> Outside.

Skull and Horns of White-Bearded Gnu.



Horns of White-Tailed Gnu. From F. H. Barber's specimen.

#### **WHITE-TAILED GNU (*Connochoëtes gnu*).**

This southern species is the true gnu, being formerly known to the Hottentots by that name, while, by the colonists, it is termed the black wildebeest. Its inferior size (height at shoulder about 3 ft. 10 ins.), the downward curvature of the horns at starting and their great expansion at the base, the pure white tail, and the abundant fringe of long hair on the chest and fore part of the belly, serve at once to distinguish it from the brindled gnu. The general colour is uniform deep amber-brown, passing into black. Females are much smaller than males; and have the horns more slender and less expanded at the base.

*Distribution.*—The northern range of this species was approximately limited by the Vaal, or northern branch of the Orange River. Like most of the large animals of the Cape it is now rapidly approaching extermination, being apparently at present represented by herds of a few hundred head preserved by the Boers of the Orange Free State. On the plains of the latter country, as well as on the Karoos of Cape Colony, it was formerly found in vast herds, generally in company with quaggas. Fierce and treacherous in disposition, it was especially characterised by its habit of indulging in grotesque capers and frolics on the approach of strangers; a practice totally unknown to its cousin on the farther side of the Vaal River.

WHITE-TAILED GNU (*Connochætes gnu*)—*continued*.

Head of White-Tailed Gnu.

Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
-30 $\frac{7}{8}$	<sup>1</sup> 22 $\frac{1}{2}$	14	Kalahari . . .	Dr. F. H. H. Guillemard.
-30	10 $\frac{1}{2}$	17 $\frac{1}{8}$	?	Mr. Justice Hopley.
-28	...	...	Colesburg . . .	F. H. Barber. (See illustration.)
-27 $\frac{7}{8}$	7	11	Orange Free State .	Count E. Hoyos.
-27 $\frac{1}{2}$	...	...	Wynburg . . .	F. H. Barber. (See illustration.)
-27 $\frac{1}{2}$	...	...	Victoria W., Cape Colony	Cape Town Museum.
-27 $\frac{1}{2}$	8 $\frac{1}{2}$	13	?	Mr. Justice Hopley.
26 $\frac{1}{2}$	8	14 $\frac{1}{2}$	South Africa . . .	Sir Edmund G. Loder, Bart.
-26 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{1}{8}$	Orange Free State .	Julius Jeppe.
-26 $\frac{1}{4}$	<sup>1</sup> 20 $\frac{1}{4}$	12 $\frac{3}{4}$	Do. . . .	Dr. W. P. Y. Bainbrigge.
-26	11 $\frac{3}{8}$	16 $\frac{1}{4}$	Do. . . .	The MacLaine of Lochbuie.
25	6 $\frac{3}{4}$	15 $\frac{1}{4}$	Do. . . .	A. Payne-Galloway.
-24 $\frac{1}{2}$	8 $\frac{1}{2}$	8	Do. . . .	Julius Jeppe.

<sup>1</sup> Circumference.



WHITE-TAILED GNU (*Connochoetes gnu*)—*continued*.

Length on front curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
24 $\frac{1}{2}$	6 $\frac{3}{4}$	15 $\frac{1}{2}$	Orange Free State .	Julius Jeppe.
24	8 $\frac{1}{2}$	15	Do. . .	Hon. Walter Rothschild.
24	8 $\frac{1}{4}$	13 $\frac{1}{4}$	Do. . .	C. D. Rudd.
23	7 $\frac{3}{4}$	17 $\frac{1}{4}$	Do. . .	A. H. Neumann.
23	7 $\frac{1}{2}$	15	Do. . .	Bloemfontein Museum.
22 $\frac{3}{4}$	7 $\frac{1}{4}$	15	Do. . .	F. C. Selous.
22 $\frac{3}{8}$	8 $\frac{1}{2}$	15 $\frac{1}{4}$	Do. . .	F. C. Selous.
-22 $\frac{1}{4}$	9 $\frac{1}{2}$	11 $\frac{3}{4}$	Do. . .	Julius Jeppe.
-22 $\frac{3}{8}$	8	14 $\frac{3}{4}$	Do. . .	Dr. Percy Rendall.
22	9	17 $\frac{1}{8}$	Do. . .	Hon. Walter Rothschild.
-22	9	11 $\frac{3}{4}$	Do. . .	Julius Jeppe.
21 $\frac{3}{4}$	10 $\frac{5}{8}$	18 $\frac{5}{8}$	Do. . .	British Museum.
-21 $\frac{1}{2}$	<sup>1</sup> 20	12 $\frac{1}{2}$	Do. . .	A. Ohlsson.
21	10	18 $\frac{1}{2}$	Do. . .	Dublin Museum.
20	5 $\frac{1}{4}$	11 $\frac{3}{4}$	Do. . .	Julius Jeppe.
♀ 19 $\frac{3}{4}$	<sup>1</sup> 13 $\frac{1}{2}$	10 $\frac{3}{4}$	Do. . .	Dr. W. P. Y. Bainbrigge.
♀ 16	4 $\frac{3}{4}$	11 $\frac{1}{2}$	Do. . .	Bloemfontein Museum.
-♀ 15 $\frac{1}{2}$	5	14 $\frac{3}{4}$	Do. . .	Julius Jeppe.
♀ 14	5	11	Do. . .	Rowland Ward.

<sup>1</sup> Circumference.



Horns of Common Duiker. From a specimen shot by F. C. Selous.

**COMMON DUIKER** (*Cephalophus grimmi*).

*Puti* of the Bechuanas.

*Impungi* of the Swazis and Zulus.

*Impunzi* of the Matabele.

*Imputi* of the Basutos.

*Gwapi* of the Chinyanjas.

The common duiker, or "diver," is the southern representative of an extensive group of small or medium-sized antelopes, mostly confined to Africa, but also containing one genus and species from India. In all of these the muzzle is naked; face-glands of a more or less elongated form are present, as are false hoofs; the tail is of medium length, the knees have no tufts of long hair, and the females are provided with four teats. The horns, which are short and straight, are generally present in both sexes, but are smoother and more slender in the does than in the bucks; and the upper molar teeth have low crowns, with square grinding surfaces. The African duikers have a single pair of horns, generally present in both sexes, and more or less hidden by a tuft of long hairs growing from the crown of the head; and the face-glands are arranged to form a bare line of pores on each side of the muzzle. The present species—the true duikerbok—is the largest member of a group of three duikers, characterised by the horns (usually absent in the females) inclining upwards at a sharp angle above the plane of the profile of the nose. Other features of the sub-group are the long and pointed ears, the general yellowish or grayish colour, devoid of dark markings, save for a brown nose-spot. Although essentially a southern form, the common duiker, which measures about 23 inches at the shoulder, ranges on the west coast as far north as Angola, and on the eastern side of the continent to British East Africa and Somaliland. Weight about 25 lbs. Throughout its habitat the timid duiker is to be met with wherever sufficient covert exists; and its furtive, squatting, dodging habits are most aptly indicated by

its name. Met with either singly or in pairs, it is never found far away from covert, strictly avoiding both open plains and steep, rocky mountains. Absence of water is, however, no bar to its existence, as it thrives in the heart of the Kalahari. It is occasionally hunted with foxhounds; its flesh is but moderately good.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-6	2 $\frac{5}{8}$	3 $\frac{1}{4}$	S. Africa . . .	James J. Harrison.
-5 $\frac{5}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	Do. . .	Julius Jeppe.
-5 $\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{7}{8}$	Selinya, Khama's country	F. C. Selous.
5 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	Cape Colony .	Mr. Justice Hopley.
-5 $\frac{1}{2}$	...	...	S. Africa	Lionel Phillips.
-9 5 $\frac{1}{2}$	1 $\frac{1}{2}$	3	Do. . .	Dr. W. P. Y. Bainbrigge.
5 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	Zululand . . .	Capt. L. O. Williams.
-5 $\frac{1}{4}$	...	...	?	O. R. Dunell.
-5 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	?	Julius Jeppe.
-5 $\frac{1}{4}$	2 $\frac{1}{8}$	2	Inyamonga, P. E. Africa	F. Vaughan Kirby.
-5 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{7}{8}$	Bredasdorp, C. Colony	Mr. Justice Hopley.
5 $\frac{1}{8}$	2	2 $\frac{3}{8}$	Transvaal . . .	H. T. and A. H. Glynn.
5	2 $\frac{1}{4}$	2 $\frac{1}{4}$	S. Africa	G. Richards.
5	2 $\frac{1}{4}$	2 $\frac{1}{2}$	Do. .	F. C. Selous.
-5	2 $\frac{1}{2}$	$\frac{3}{8}$	Transvaal . . .	F. Vaughan Kirby.
-5	...	...	Natal .	T. E. Buckley.
5	2 $\frac{1}{2}$	3 $\frac{1}{4}$	Northern Rhodesia .	F. Smitheman.
4 $\frac{1}{2}$	...	2 $\frac{7}{8}$	Algoa Bay . . .	F. C. Selous, British Museum.
4 $\frac{1}{2}$	2 $\frac{1}{4}$	1 $\frac{3}{4}$	South Africa . .	G. H. M. Banks.
4 $\frac{1}{2}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$	Do. .	R. A. Cooper.
-4 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	Mashonaland .	A. Ohlsson.
4 $\frac{1}{2}$	2	2 $\frac{3}{4}$	South Africa .	Dr. W. P. Y. Bainbrigge.
-4 $\frac{1}{2}$	...	...	?	Cape Town Museum.
-4 $\frac{1}{2}$	...	...	?	C. T. Jones.
4 $\frac{3}{8}$	2	1 $\frac{5}{8}$	Matabeleland . .	Lord Brackley.
4 $\frac{3}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	Chanda . . .	C. C. Bowring.

**COMMON DUIKER** (*Cephalophus grimmi*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
4 $\frac{3}{8}$	2	2 $\frac{5}{8}$	Zululand . .	A. Cameron.
4 $\frac{1}{4}$	1 $\frac{7}{8}$	2 $\frac{3}{4}$	E. Africa . .	Sir Robert Harvey, Bart.
-4 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$ $\frac{5}{8}$	Barberton .	Dr. Percy Rendall.
4 $\frac{1}{8}$	2	1 $\frac{1}{2}$	Benguela, Angola .	G. W. Penrice.
4 $\frac{1}{8}$	1 $\frac{7}{8}$	2 $\frac{5}{8}$	Natal . . .	J. Wahlberg, British Museum.
4 $\frac{1}{8}$	2 $\frac{5}{8}$	2 $\frac{1}{4}$	Near Borgu, West Africa	Capt. N. C. Welch.
4	2	2 $\frac{3}{4}$	Barotseland . .	R. T. Coryndon.
4	2	1 $\frac{7}{8}$	East Africa .	F. J. Jackson, C.B.
♀ 4	1 $\frac{3}{8}$	1 $\frac{1}{4}$	North of Great Namaqualand	Th. Rehbock.
4	1 $\frac{7}{8}$	1 $\frac{1}{2}$	South Africa . .	H. and C. Beddington.
4	2	1 $\frac{3}{4}$	Matabeleland .	W. W. Ashley.
♀ 3 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{8}$	Transvaal . .	Julius Jeppe.

**ABYSSINIAN DUIKER** (*Cephalophus abyssinicus*).

Abyssinian name *Midaku*.

Belonging to the same sub-group as the common duiker, and agreeing with the crowned duiker (*C. coronatus*) in size, this species differs from the latter by the general colour of the fur being grayish brown, instead of bright yellow. It was discovered by the traveller Rüppell, and its habits have been well described by Mr. W. T. Blanford in his *Geology and Zoology of Abyssinia*.

*Distribution*.—The highlands of Abyssinia.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-3 $\frac{9}{16}$	2 $\frac{3}{16}$	2 $\frac{1}{8}$	Abyssinia . .	Prince A. de Lucinge.
-3 $\frac{1}{2}$	1 $\frac{7}{8}$	1 $\frac{3}{4}$	Do. .	Sir Victor Brooke's Collection.
-3 $\frac{9}{16}$	2	1 $\frac{1}{2}$ $\frac{5}{8}$	Galla country . .	Viscount Edmond de Poncins.
2 $\frac{3}{4}$	1 $\frac{7}{8}$	1 $\frac{1}{4}$	Abyssinia . .	British Museum.



Head of Blue Duiker.

**BLUE DUIKER** (*Cephalophus monticola*).*Ipiti* of all the Zulu tribes.

In the great majority of the duikers, that is to say all except the three included in the group mentioned above, the horns, which are generally present in both sexes, slope backwards either in or just below the line of the profile of the nose. The present species is included in a sub-group characterised by the smoky-brown or blackish coloration; and is especially distinguished by the rufous legs and uniformly coloured rump, the height at the shoulder being 13 inches. Weight about 26 lbs.

*Distribution*.—Southern Africa, from the wooded districts of Cape Colony northwards to Benguela on the west, and Nyasaland on the east.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$-2\frac{1}{2}$	...	$1\frac{1}{2}$	Cape Colony . . .	F. Vaughan Kirby.
$2\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{1}{2}$	Tushila Plain, B.C.A.	Hon. Walter Rothschild.
$-2\frac{1}{4}$	...	...	Knysna, Cape Colony	Cape Town Museum.
$-2\frac{1}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	Do. . . .	Mr. Justice Hopley.
$-2\frac{1}{10}$	$1\frac{3}{8}$	$\frac{1}{2}$	Natal . . . .	Dr. Percy Rendall.
2	...	$1\frac{3}{4}$	Do. . . .	F. C. Selous.
2	$1\frac{5}{8}$	$1\frac{3}{4}$	Benguela . . . .	G. W. Penrice.
-2	...	...	?	O. R. Dunell.
$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{8}$	Benguela . . . .	Hon. Walter Rothschild.
$-1\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{3}{4}$	?	A. Ohlsson.
$-1\frac{3}{4}$	...	...	?	C. T. Jones.
♀ $1\frac{1}{10}$	$1\frac{1}{10}$	$1\frac{1}{10}$	Natal . . . .	Dr. Percy Rendall.
$-1\frac{5}{8}$	$1\frac{5}{8}$	$1\frac{7}{8}$	?	Julius Jeppe.
$1\frac{9}{10}$	$1\frac{6}{10}$	$1\frac{3}{4}$	?	Major H. J. Goold-Adams, C.B., C.M.G.
$-1\frac{3}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	?	Julius Jeppe.

**MAXWELL'S DUIKER** (*Cephalophus maxwelli*).

This species belongs to the sub-group characterised by the smoky-brown or blackish colour. In size it is small (height at shoulder about 14 inches). The face is coloured like the back; the limbs, like the body, are grayish brown; and the rump is not parti-coloured. It was first brought to England by Col. C. Maxwell, and described by Major Hamilton Smith in 1827.

*Distribution*.—West Africa, from Gambia to the Gold Coast.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
1 $\frac{5}{8}$	2 $\frac{1}{8}$	2	Fanti . . .	Hon. Walter Rothschild.

**RED or NATAL DUIKER** (*Cephalophus natalensis*).

*Rooi-Bosch-bokje* of the Boers. *Msumbi* of the Swazis and Malonga.

*Mkumbi* of the Zulus. *Izikupu* of the Basutos.

*Chisimbi* of the Lower Zambesi natives.

This duiker is classed in another sub-group of small or medium-sized species characterised by the fulvous, rufous, or chestnut ground-colour; and is specially distinguished by its small size (height at shoulder, 17 inches) and completely uniform coloration, having no dark markings on either the face or body.

*Distribution*.—Natal, Transvaal, and Mashonaland (including all the forest and bush country of the East Coast), also seen by F. Vaughan Kirby and James J. Harrison near the Lualwa River, Mozambique Province.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-3 $\frac{7}{8}$	2 $\frac{3}{4}$	2	?	Julius Jeppe.
-3 $\frac{3}{8}$	2 $\frac{7}{8}$	2 $\frac{1}{2}$	Shupanga Forest .	F. Vaughan Kirby.
3 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{8}$	Sabi Flats .	James J. Harrison.
-3 $\frac{3}{8}$	2 $\frac{3}{8}$	2	Makongwa Mountains, Barberton (about 6000 ft.)	Dr. Percy Rendall.
-3 $\frac{1}{4}$	3	2	Foothills of Kahlamba .	F. Vaughan Kirby.
-3 $\frac{1}{4}$	2 $\frac{7}{8}$	2 $\frac{3}{8}$	?	Julius Jeppe.
-3 $\frac{1}{4}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	Spitzkop . .	H. T. and A. H. Glynn.

RED or NATAL DUIKER (*Cephalophus natalensis*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$3\frac{1}{8}$	...	$2\frac{1}{8}$	Natal	Dr. A. Kraus, British Museum.
$-3\frac{1}{8}$	$2\frac{1}{2}$	$1\frac{7}{8}$	Do.	Mr. Justice Hopley.
-3	...	...	?	C. T. Jones.
-3	...	2	?	F. J. Newnham.
3	$2\frac{3}{8}$	$1\frac{3}{8}$	Natal	Major H. J. Goold-Adams, C.B., C.M.G.
-♀ $2\frac{3}{4}$	$1\frac{7}{8}$	1	Foothills of Kahlamba	F. Vaughan Kirby.
$2\frac{3}{4}$	2	...	?	Sir Edmund G. Loder, Bart.
$2\frac{3}{4}$	$2\frac{5}{8}$	$2\frac{1}{4}$	South Africa	Dr. Oakshott.
$-2\frac{3}{4}$	...	...	Lydenburg	Cape Town Museum.
$2\frac{5}{8}$	$2\frac{1}{2}$	$1\frac{7}{8}$	?	F. E. Potter.
$-2\frac{5}{8}$	...	...	?	O. R. Dunell.
$-2\frac{1}{2}$	$2\frac{3}{4}$	2	Natal	Dr. W. P. Y. Bainbrigge.
$2\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{3}{4}$	S.E. Africa	G. Richards.
$-2\frac{1}{2}$	$1\frac{3}{4}$	...	?	A. Ohlsson.
$2\frac{5}{10}$	...	$2\frac{1}{10}$	Near Durban	F. C. Selous.
-♀ $1\frac{7}{8}$	$1\frac{3}{4}$	1	Barberton	Dr. Percy Rendall.
♀ $1\frac{5}{8}$	...	1	Near Durban	F. C. Selous.
♀ $1\frac{5}{8}$	$1\frac{7}{8}$	2	?	Hon. Walter Rothschild.

BAY DUIKER (*Cephalophus dorsalis*).

From the last species the bay duiker, together with some allied West African forms, differs by the presence of a black stripe running along the back and continued to the tail. As a species, its special characters are the dark colour of the hams, and the evenly haired tail, which shows no sign of a tuft, and is parti-coloured.

*Distribution*.—West Africa, from Sierra Leone to the Cameroons; there being a northern and a southern race.

Length on front.	Girth.	Tip to Tip.	Locality.	Owner.
$3\frac{1}{10}$	$2\frac{1}{8}$	2	West Africa	Hon. Walter Rothschild.

**BANDED DUIKER** (*Cephalophus doriæ*).

The tiger-like transverse black bands on the orange ground of the back suffice to distinguish at a glance this pretty little duiker from all its kindred.

*Distribution*.—The interior of the West Coast of Africa from Liberia to Sierra Leone, where it is commonly known as the mountain deer.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$-1\frac{7}{8}$	...	1	Liberia . . .	Dr. J. Büttikofer, British Museum.
$1\frac{5}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$	Do. . . .	Hon. Walter Rothschild.

**YELLOW-BACKED DUIKER** (*Cephalophus sylvicultor*).

This species is distinguished from all the other members of the genus by its large size, coupled with its blackish coloration, and the presence of a yellowish crest and similarly coloured longitudinal patch on the rump. Height at shoulder, 34 inches.

*Distribution*.—The West Coast of Africa from Liberia to Angola.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$6\frac{3}{4}$	...	$4\frac{1}{2}$	Fanti . . .	British Museum.
$6\frac{5}{8}$	$3\frac{5}{8}$	$4\frac{3}{8}$	Do. . . .	Do.
$6\frac{1}{4}$	4	$3\frac{1}{2}$	Liberia . . .	Dr. J. Büttikofer, British Museum.
$5\frac{1}{2}$	$3\frac{3}{8}$	$4\frac{1}{8}$	Gaboon . . .	Sir Edmund G. Loder, Bart.
$4\frac{5}{8}$	...	$2\frac{1}{4}$	Fanti . . .	British Museum.





Head of Male Four-horned Antelope.

**FOUR-HORNED ANTELOPE or CHOUSINGHA** (*Tetraceros quadricornis*).

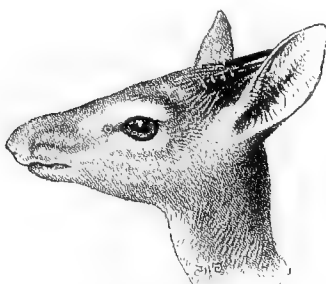
This antelope is the Oriental representative of the African duikers, from which it is distinguished by the following features. Typically there are two pairs of horns, and the face-glands form deep slits on the sides of the muzzle instead of a long naked line; the females being hornless. Height at shoulder about 25 inches, and weight about 40 lbs. General colour dull rufous brown, becoming whitish beneath, with the muzzle, the outer surface of the ears, and a line down the front of each leg blackish brown, and some white on the outer side of the pasterns. The front horns are not unfrequently mere knobs, and may even be wanting, as in most of the Kathiawar specimens.

*Distribution.*—Peninsular India south of the Himalayas.

Length of horns on front.		Circumference.		Tip to Tip.		Locality.	Owner.
Rear.	Fore.	Rear.	Fore.	Rear.	Fore.		
-5	...	...	...	...	...	Jhalawar . .	H.H. Maharaja Rana Bahadur of Jhalawar.
-4½	2½	2¼	1⅞	2⅞	1	Lulitpur . .	Surg.-Gen. Walker.
-4½	2½	...	...	...	...	Gurhwal . .	Capt. Ging.
4⅜	2½	2¼	2⅝	1⅞	2⅞	India . .	Sir Edmund G. Loder, Bart.
-4½	1½	...	...	...	...	Do. . .	J. D. Inverarity.

**FOUR-HORNED ANTELOPE or CHOUSINGHA (*Tetraceros quadricornis*)—**  
*continued.*

Length of horns on front.		Circumference.		Tip to Tip.		Locality.	Owner.
Rear.	Fore.	Rear.	Fore.	Rear.	Fore.		
4	2½	1⅞	1⅞	3	1⅞	Indore . . .	Col. J. Evans, British Museum.
4	2	3	1⅞	1¾	2½	Karkote Jungle, near Mhow	Lieut.-Col. G. D. F. Sullivan.
-3¾	...	...	...	...	...	India . . .	Indian Museum.
3⅞	1¾	1⅞	2	1⅞	2½	Do. . . .	Sir Robert Harvey, Bart.
-3⅞	1⅞	...	...	...	...	Do. . . .	J. D. Inverarity.
3½	2	3⅞	1⅞	1⅞	1⅞	Central Provinces .	C. F. Egerton.
3½	2	1⅞	1⅞	1¾	2½	India . . .	H.R.H. the Duke of Saxe-Coburg and Gotha.
-3½	2¼	...	...	...	...	Do. . . .	Indian Museum.
-3½	3¾	...	...	...	...	Mandla, C.P. . .	Capt. B. H. Boucher.
3⅞	1⅞	2	1¾	...	...	Central Provinces	Hon. Walter Rothschild.
3¼	1⅞	2	1¾	...	...	Jhalawar	Mr. Justice Hopley.
3⅞	2¼	2⅞	1¾	2	¼	Central Provinces	C. D. Twopeny.
-3⅞	...	...	...	...	...	Kathiawar . . .	Lieut.-Col. L. L. Fenton.
-3¼	2	2¼	2⅞	2¾	1⅞	Central Provinces .	Bombay Natural History Society's Museum.
3⅞	1⅞	1¾	1½	2⅞	1⅞	N.W. Provinces .	Capt. R. B. Fell.
3¼	1⅞	2	...	2¼	1¼	India	A. M. Caccia.



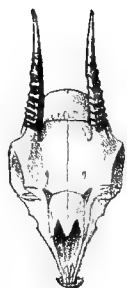
Head of Salt's Dik-dik.

**SALT'S DIK-DIK (*Madoqua saltiana*).**

This species, the Beni Israel of the Arabs, is the typical representative of a group of tiny, slenderly-built antelopes characterised by the elongated, trunk-like nose, of which the tip is almost entirely hairy, the tuft of hair on the crown of the head, the short and almost rudimentary tail, and the minute size of the lateral hoofs. In the present species the last tooth in the lower jaw lacks the third lobe found in almost all ruminants, the trunk is but moderately developed, and the general colour fulvous or rufous fawn, scarcely more rufous on the sides than on the back. Height at the shoulder, 14 or 15 inches.

*Distribution*.—The Coast Range of Eastern Abyssinia, and adjacent districts of Somaliland.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
3	1	1	Abyssinia . . .	Sir Edmund G. Loder, Bart.
2 $\frac{3}{4}$	1	1	Do. . . .	Rowland Ward.
2 $\frac{5}{8}$	...	1 $\frac{3}{4}$	Do. . . .	Sir Victor Brooke's Collection.
2 $\frac{1}{2}$	1 $\frac{1}{2}$	...	North Kassala . .	Col. Ralph Vivian.
2 $\frac{3}{4}$	...	1 $\frac{5}{8}$	?	British Museum.



Skull of Phillips's Dik-dik.



Head of Swayne's Dik-dik.

**SOMALI DIK-DIKS** (*Madoqua swaynei*, *M. phillipsi*, and *M. guentheri*).General native name, *Sakáro*.

Different districts of Somaliland are inhabited by the three species of dik-diks above named. The first of these is allied to Salt's dik-dik, but is of smaller size; it inhabits the northern half of Somaliland. Phillips's dik-dik, which also occurs in Northern Somaliland, is intermediate in size between Salt's and Swayne's dik-dik, from both of which it is distinguished by having the back gray and the sides and shoulders rich rufous or cinnamon. On the other hand, Günther's dik-dik is widely different from both, being nearly allied to the under-mentioned Kirk's dik-dik, from which it is distinguished by the form of the nasal bones in the skull.

Height at shoulder about 14 inches. Weight, ♂ 6 lbs.;  
♀ 5 lbs. (T. W. H. Clarke).

*Sakáro Guyu* (*Madoqua swaynei*).      *Distribution*.—Berbera District.

*Sakáro Gol-Ass* (*Madoqua phillipsi*).      „      Northern half of  
Somaliland.

*Sakáro Gussuli* (*Madoqua guentheri*).      „      Plateau of Central  
Somaliland.

Length on front.	Girth.	Tip to Tip.	Locality.	Owner.
3½	1¼	1⅞	Somaliland . .	J. Kenneth Foster.
3½	...	...	Do. . .	Capt. F. A. Wilson.
3¼	1¼	1⅝	Do. . .	W. W. Ashley.
3⅝	1¼	1½	Do. . .	Major C. F. Blane.

**SOMALI DIK-DIKS** (*Madoqua swaynei*, *M. phillipsi*, and *M. guentheri*)—  
*continued.*

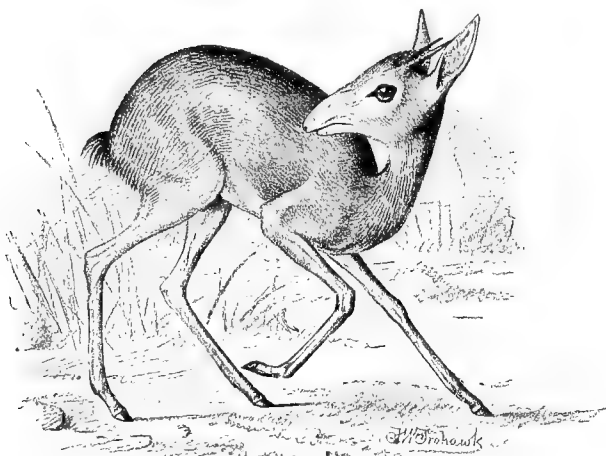
Length on front.	Girth.	Tip to Tip.	Locality.	Owner.
<sup>1</sup> -3 $\frac{1}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	Somaliland . .	A. E. Pease.
-3 $\frac{1}{8}$	...	...	Do. . .	J. Brander Dunbar.
3	...	1	Do. . .	Sir Edmund G. Loder, Bart.
3	1 $\frac{1}{2}$	...	Do. . .	Col. Arthur Paget.
-3	...	1 $\frac{5}{8}$	Do. . .	Viscount Edmond de Poncins.
-2 $1\frac{5}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$	Do. . .	Do.
-2 $\frac{7}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{8}$	Do. . .	J. Johnston-Stewart.
2 $\frac{7}{8}$	1 $\frac{3}{8}$	1 $\frac{5}{8}$	Do. . .	Lord Delamere.
2 $\frac{3}{4}$	1	1	Do. . .	T. W. H. Clarke.
2 $\frac{3}{4}$	1 $\frac{1}{2}$	...	Do. . .	C. Liddell.
-2 $\frac{5}{8}$	...	...	Do. . .	J. Brander Dunbar.
<sup>1</sup> -2 $\frac{1}{2}$	1	...	Do. . .	C. V. A. Peel.
2 $\frac{1}{2}$	...	...	Do. . .	Rowland Ward.
2 $\frac{1}{2}$	1	1 $\frac{5}{8}$	Do. . .	Major H. G. C. Swayne.
2 $\frac{1}{2}$	...	1 $\frac{5}{8}$	Do. . .	Sir Edmund G. Loder, Bart.
2 $\frac{3}{8}$	1 $\frac{1}{2}$	...	Do. . .	C. Liddell.
-2 $\frac{1}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{4}$	Do. . .	Dr. Percy Rendall.
<sup>1</sup> -2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{4}$	Do. . .	Julius Jeppe.
-1 $\frac{3}{4}$	1 $\frac{1}{8}$	1 $\frac{7}{8}$	Do. . .	Do.
<sup>2</sup> -3 $\frac{1}{4}$	...	1 $\frac{1}{4}$	Do. . .	C. V. A. Peel.
<sup>2</sup> -2 $\frac{1}{2}$	...	...	Njemps . .	F. J. Jackson, C.B.

<sup>1</sup> *M. phillipsi*.<sup>2</sup> *M. guentheri*.

The following are the dimensions of a specimen of *M. guentheri*:—

Length, 23 $\frac{1}{4}$ . Height, 15 $\frac{1}{4}$ . Horns, 2 $\frac{1}{2}$ . Weight, 8 $\frac{1}{4}$  lbs.

Shot at Njemps, 26 : 9 : 96, by F. J. Jackson, C.B.



Kirk's Dik-dik.

**KIRK'S DIK-DIK (*Madoqua kirki*).**

This dik-dik belongs to a small group of species differing from the one containing *M. saltiana* by the presence of three lobes to the last tooth of the lower jaw, and likewise by the more decidedly trunk-like character of the muzzle. Of the other members of the group, *M. damarensis* differs by its superior size, and *M. guentheri* by the still greater development of the trunk.

*Distribution*.—East Africa, from Southern Somaliland to Ugogo, most numerous on the coast.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
3	...	1½	East Africa . . .	F. J. Jackson, C. B.
2¼	...	1⅝	Do. . . .	British Museum.
2⅝	1½	1⅞	Do. . . .	Col. Trevor Ternan.
2⅝	...	1½	Do. . . .	Sir Robert Harvey, Bart.
2⅝	1½	1⅝	Kilimanjaro . . .	H. C. V. Hunter, British Museum.
2⅝	...	1¾	East Africa . . .	Sir Robert Harvey, Bart.
2⅝	1½	1⅞	East African Coast .	Col. Trevor Ternan.
2½	...	1⅝	East Africa . . .	Hon. Walter Rothschild.
2½	...	1⅞	Do. . . .	Rowland Ward.
2⅝	...	1⅞	Manda Island . . .	Sir John Kirk, K. C. B.

**DAMARALAND DUIKER** (*Madoqua damarensis*).

Character mentioned under heading of the preceding species.

*Distribution.*—Damaraland.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$-2\frac{1}{2}$	...	...	Damaraland	Cape Town Museum (type specimen).
$-2\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	Do.	A. Ohlsson.

**HEMPRICH'S DIK-DIK** (*Madoqua hemprichiana*).

Further information is desirable as to the right of this form to specific distinction.

Length on front.	Circumference.	Tip to Tip	Locality.	Owner.
$2\frac{5}{16}$	$1\frac{3}{8}$	$1\frac{1}{16}$	Abyssinia	Hon. Walter Rothschild.



Head of Male Oribi from Pungwe, South-East Africa.

**CAPE ORIBI** (*Oribia scoparia*).

*Inla* of the Swazis and Zulus.     *Pulukudukamani* of the Basutos.

The oribis, grysbuck, klipspringer, and their allies constitute a group of comparatively small African antelopes presenting the following characters in common. The muzzle has a naked tip, the head is devoid of a tuft of hair, large face-glands open beneath the eyes by a small aperture on each side, the tail is short or moderate, and false hoofs may or may not be retained. Horns are present only in the bucks, and are short, almost, or quite, straight, with smoothed tips and ridged bases. The upper molar teeth have tall and narrow crowns. The dik-diks are nearly allied, but differ by their tufted heads, and elongated hairy muzzles. The oribis, which are the largest members of the group, have normal hoofs and hair, and are specially distinguished by the presence of a bare glandular spot beneath each ear, and of a large opening in the skull beneath each eye-socket. In the Cape species the horns of the bucks are comparatively smooth and slender, with only their basal two inches slightly ridged; the tail being tufted and moderately bushy, with its terminal two-thirds black. Height at shoulders, 24 inches.

*Distribution*.—Typically, Africa south of the Zambesi. On grassy plains this graceful little antelope is still plentiful in many districts; and the gunner in search of bustard or francolin will often see one of them start up from its form before his pointer, to scud away at a great rate, occasionally making springs from side to side. At close quarters



a charge of shot will suffice to bowl over this diminutive little buck, and thus add some capital venison to the larder. Formerly oribi afforded excellent sport with greyhounds in the eastern districts of Cape Colony.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$-7\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{5}{8}$	Zomba, B. C. A.	D. MacAlpine.
$6\frac{1}{2}$	$2\frac{1}{4}$	...	E. Griqualand	Jff. Darling, British Museum.
6	$2\frac{1}{8}$	$2\frac{1}{4}$	Spitzkop	H. T. and A. H. Glynn.
-6	...	...	Natal	Cape Town Museum.
$-5\frac{1}{8}$	2	$2\frac{1}{2}$	?	Mr. Justice Hopley.
$-5\frac{7}{8}$	2	$3\frac{1}{4}$	?	Do.
$5\frac{3}{8}$	2	$3\frac{1}{4}$	Barotseland	H. Timmins.
$5\frac{5}{8}$	2	$2\frac{3}{4}$	Bangueolo	F. Smitheman.
$5\frac{5}{8}$	$2\frac{1}{8}$	$1\frac{7}{8}$	Transvaal	F. R. N. Findlay.
$5\frac{1}{2}$	$1\frac{7}{8}$	3	Pungwe	G. L. Bopham.
$-5\frac{1}{2}$	$1\frac{7}{8}$	$3\frac{1}{4}$	?	Julius Jeppe.
$-5\frac{1}{2}$	2	$2\frac{1}{2}$	Gorongosa, P. E. Africa	F. Vaughan Kirby.
$-5\frac{1}{2}$	$1\frac{7}{8}$	$3\frac{1}{2}$	?	A. Ohlsson.
$5\frac{1}{2}$	2	$2\frac{3}{4}$	M'peta Island, Upper Zambesi	R. T. Coryndon.
$-5\frac{3}{8}$	2	$2\frac{1}{2}$	Do.	Do.
$-5\frac{1}{4}$	...	...	?	O. R. Dunell.
$5\frac{1}{8}$	1	$2\frac{1}{4}$	S.E. of Lake Bangueolo	Poulett-Weatherley.
5	2	$1\frac{7}{8}$	Pungwe	Col. G. A. Percy.
5	$1\frac{3}{4}$	$1\frac{7}{8}$	?	F. Vaughan Kirby.
-5	$1\frac{7}{8}$	$2\frac{1}{2}$	M'peta Island	F. Aitkens.
-5	2	$2\frac{1}{16}$	Barberton	Dr. Percy Rendall.
$-4\frac{7}{8}$	...	...	Transvaal	C. T. Jones.
$-4\frac{3}{4}$	$2\frac{1}{8}$	$2\frac{3}{8}$	M'peta Island	F. V. Worthington.
$4\frac{1}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	Pungwe	A. C. Humbert.
$4\frac{3}{4}$	2	$2\frac{1}{2}$	Cape Colony	British Museum.
$4\frac{3}{4}$	$2\frac{1}{8}$	$2\frac{5}{8}$	British Central Africa	J. E. Gough.
$4\frac{3}{4}$	$1\frac{3}{4}$	2	Manica Plateau	F. C. Selous.

CAPE ORIBI (*Oribia scoparia*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$4\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{7}{8}$	?	Julius Jeppe.
$4\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{7}{8}$	Pungwe . . .	R. K. Micklethwait.
$4\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{8}$	?	G. Richards.
$-4\frac{1}{2}$	$1\frac{7}{8}$	$2\frac{1}{2}$	?	Count E. Hoyos.
$-4\frac{3}{8}$	$2\frac{7}{16}$	$2\frac{5}{16}$	Upper Shiré Valley .	Dr. Percy Rendall.
$-4\frac{3}{8}$	$1\frac{3}{4}$	$2\frac{1}{4}$	?	Dr. W. P. Y. Bainbrigge.
$4\frac{1}{4}$	$1\frac{5}{8}$	$2\frac{1}{2}$	Pungwe . . .	A. Cameron.
$4\frac{5}{16}$	$1\frac{1}{4}$	$2\frac{1}{4}$	Tuchila Plain, B.C.A.	Hon. Walter Rothschild.
4	$1\frac{3}{4}$	$2\frac{1}{8}$	Pungwe . . .	G. Micklethwait.

ABYSSINIAN ORIBI (*Oribia montana*).*Miwaka* of the Abyssinians.

Very similar in most characters to the Cape species, but with a shorter and less bushy tail, the tip of which has only a few sparse black hairs. Height at shoulder,  $22\frac{1}{2}$  inches. These antelopes are shy and rarely seen in the open, preferring the thick bush and long grass. If disturbed they go at a great pace with their heads quite close to the ground. Their flesh is very good.

Viscount Edmond de Poncins states that a fine male weighed 30 lbs. 13 oz., and stood  $19\frac{1}{2}$  inches at the shoulder.

*Distribution*.—Abyssinia and Bongoland.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
5	...	$2\frac{1}{2}$	Abyssinia .	Sir Edmund G. Loder, Bart.
$-4\frac{7}{8}$	$2\frac{3}{8}$	2	Hawash, Abyssinia .	Prince A. de Lucinge.
$-4\frac{1}{2}$	2	2	Do. .	Viscount Edmond de Poncins.
$4\frac{3}{8}$	$1\frac{5}{8}$	$2\frac{1}{2}$	Dombelas, Abyssinia .	British Museum.
4.12	2.2	2.3	Sudan . . .	Prince Henry of Liechtenstein.
4	2	2.6	Do. .	Do.
$3\frac{1}{2}$	2	$2\frac{1}{4}$	Do. . .	Lieut.-Col. Hon. W. Coke.

**WEST AFRICAN ORIBI** (*Oribia nigricaudata*).

The present species is very close to the Abyssinian oribi, but of smaller size, grayer, and with a distinct black tip to the tail, as in the Cape species. Height at shoulder, 20 inches.

*Distribution*.—The open country of Senegal and Gambia.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$3\frac{1}{8}$	$1\frac{7}{8}$	$1\frac{3}{4}$	Nigeria . . .	Capt. A. H. Festing.
$3\frac{3}{4}$	$1\frac{1}{2}$	...	Kiama . . .	A. W. M. Brodie.
3	$1\frac{5}{8}$	$2\frac{3}{4}$	Gambia . . .	Charles B. Mosse, British Museum.

**HAGGARD'S ORIBI** (*Oribia haggardi*).

Swahili name, *Taya*.

Still imperfectly known, but distinguished from all the other oribis by the stouter horns, which are strongly ridged for rather more than the basal half of their length. Height at shoulder about 24 inches.

*Distribution*.—The coast districts of East Africa in the neighbourhood of Lamu. Discovered in 1887 by Mr. J. G. Haggard.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$1\frac{5}{8}$	$2\frac{1}{4}$	2	East Central Africa . . .	Hon. Walter Rothschild.
$1\frac{5}{8}$	$1\frac{1}{8}$	$2\frac{3}{8}$	North end of Lake Albert . . .	Col. Trevor Ternan.
$4\frac{5}{8}$	2	$2\frac{1}{4}$	East Africa . . . .	F. J. Jackson, C.B.
$1\frac{4}{10}$	2	$2\frac{1}{4}$	Lake Albert . . . .	Col. Trevor Ternan.
$1\frac{4}{10}$	?	$2\frac{5}{8}$	Do. . . . .	Do,
$4\frac{1}{8}$	$1\frac{3}{4}$	$2\frac{1}{2}$	East Africa . . . . .	F. J. Jackson, C.B.

<sup>1</sup> Determination provisional.

**ZANZIBAR ANTELOPE** (*Nesotragus moschatus*).

The two elegant little antelopes included in the genus *Nesotragus* are near relatives of the oribis, from which they are distinguished by the absence of a naked glandular patch below each ear and the want of lateral hoofs. They are further characterised by the horns being directed backwards nearly or quite in the plane of the face, and extending at least as far as the back of the head, as also by the large size of the empty spaces in the skull below the sockets of the eyes, and by the nasal bones. In the present species the horns are short and slender, and the colour, inclusive of the tail-tip, fawn gray. Height at shoulder about 13 inches.

*Distribution*.—Islets near Zanzibar and adjacent coast from Kilimanjaro to Mozambique.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$3\frac{1}{4}$	$1\frac{1}{2}$	2	Coral Islands, Zanzibar .	Sir John Kirk, K.C.B.
$3\frac{1}{4}$	$1\frac{5}{8}$	$1\frac{1}{2}$	Zanzibar . . .	The late Capt. Speke, British Museum.
$3\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	Do. . .	Sir John Kirk, K.C.B., British Museum.
$2\frac{5}{8}$	$1\frac{1}{4}$	$1\frac{3}{4}$	Do. . .	Sir Victor Brooke's Collection.



Skull and Horns of Livingstone's Antelope, from a specimen shot by F. Vaughan Kirby.

**LIVINGSTONE'S ANTELOPE** (*Nesotragus livingstonianus*).

*Lumswi* of the Shupanga.

*Intilengana* of the Amatonga.

Distinguished from the preceding species by its slightly superior dimensions (height at shoulder, 15 inches), the longer and thicker horns, more rufous coloration, and the blackish upper surface of the tail.

Two specimens killed by F. Vaughan Kirby measured—

	Male.	Female.
Extreme length over all, tip of nose to end of tail	27 $\frac{1}{8}$ ins.	25 $\frac{3}{4}$ ins.
Length of tail . . . . .	3 $\frac{1}{2}$ "	3 "
Perpendicular shoulder-height . . . . .	14 $\frac{1}{4}$ "	13 $\frac{1}{8}$ "
" height at croup . . . . .	14 $\frac{3}{4}$ "	14 $\frac{1}{4}$ "
Girth of neck . . . . .	6 $\frac{1}{2}$ "	6 "
" behind the shoulder . . . . .	14 $\frac{1}{8}$ "	13 $\frac{5}{8}$ "

*Distribution*.—South-East Africa, from Mozambique to Zululand; the form from Zululand being distinguished as *N. livingstonianus zuluensis*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
4 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	Shupanga Forest	F. Vaughan Kirby.
4 $\frac{1}{2}$	..	1 $\frac{3}{4}$	?	F. J. Newnham.
4 $\frac{2}{3}$	2 $\frac{1}{8}$	..	Gungunyana's country	H. T. Glynn, British Museum.
4 $\frac{2}{3}$	...	...	Delagoa Bay	F. H. Barber.

LIVINGSTONE'S ANTELOPE (*Nesotragus livingstonianus*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-4 $\frac{1}{4}$	...	...	?	O. R. Dunell.
-4 $\frac{1}{8}$	...	...	?	C. T. Jones.
-4 $\frac{1}{8}$	...	1	Delagoa Bay . .	F. C. Selous.
-4	1 $\frac{3}{4}$	1 $\frac{3}{8}$	?	Julius Jeppe.
-4	...	...	?	C. T. Jones.
-4	1 $\frac{3}{4}$	1 $\frac{3}{8}$	?	Julius Jeppe.
3 $\frac{3}{4}$	1 $\frac{3}{4}$	2	?	C. D. Rudd.
-3 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{4}$	Zambesi . . .	Sir Edmund Loder, Bart.
3 $\frac{11}{16}$	1 $\frac{3}{4}$	2 $\frac{5}{16}$	Delagoa Bay .	Hon. Walter Rothschild.
3 $\frac{3}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{8}$	Do.	G. Richards.
-3 $\frac{3}{8}$	1 $\frac{5}{8}$	1 $\frac{5}{8}$	Do. . .	Julius Jeppe.
-3 $\frac{3}{8}$	1 $\frac{3}{4}$	1 $\frac{5}{8}$	Do. .	Mr. Justice Hopley.
3 $\frac{5}{16}$	...	...	Do. .	Dr. Percy Rendall.
3 $\frac{1}{4}$	1 $\frac{5}{8}$	1 $\frac{5}{8}$	?	Major H. J. Goold-Adams, C.B., C.M.G.
3 $\frac{9}{16}$	1 $\frac{3}{4}$	1 $\frac{3}{8}$	?	F. E. Potter.
-3 $\frac{1}{8}$	1 $\frac{7}{8}$	1 $\frac{3}{4}$	?	A. Ohlsson.
3 $\frac{1}{16}$	2	...	Northern Zululand .	A. H. Neumann, British Museum.
3	1 $\frac{5}{8}$	2 $\frac{1}{8}$	Zululand . .	A. Cameron.



Head of Grysbuck, from a specimen shot by F. C. Selous.

**GRYSBUCK** (*Rhaphiceros melanotis*).

*Isikupî* of the Basutos.

From the other members of the oribi group the grysbuck and its cousin the steinbuck are readily distinguished by the horns rising nearly vertically from the skull, in which the open spaces below the eye-sockets are unusually small. Curiously enough, the grysbuck retains the lateral hoofs, which have disappeared in the steinbuck. In addition to this feature, the former is distinguished by the fur showing a large admixture of white, instead of being uniformly coloured. Height at shoulder, 22 inches.

*Distribution*.—South Africa, extending as far north as the Zambesi and Mozambique.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$4\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{7}{8}$	?	R. A. Cooper.
4	...	...	Caledon, C.C.	Cape Town Museum.
$3\frac{9}{16}$	$1\frac{3}{4}$	$1\frac{7}{8}$	Cape Colony	F. C. Selous. (See illustration.)
$3\frac{1}{2}$	...	...	Limpopo	C. T. Jones.
$3\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{3}{8}$	Knysna, C.C.	Mr. Justice Hopley.
$3\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{4}$	?	Major H. J. Goold-Adams, C.B., C.M.G.
$3\frac{1}{8}$	$1\frac{1}{2}$	$1\frac{1}{2}$	Knysna, C.C.	Mr. Justice Hopley.
$3\frac{1}{8}$	$1\frac{3}{4}$	$2\frac{1}{2}$	Komati Poort	F. Vaughan Kirby.
$3\frac{1}{2}$	$1\frac{1}{2}$	2	?	A. Ohlsson.
$2\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	?	G. Richards.
$2\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	?	Julius Jeppe.



Head of Steinbuck.

**STEINBUCK** (*Rhaphiceros campestris*).*Ishah* of the Swahilis.*Impulupudi* of the Basutos.*Ingaina* of the Swazis.*Phuduhudu* of the Bechuanas.*Umgwena* of the Matabele.

As mentioned before, this species is at once distinguished from the grysbuck by the absence of the lateral hoofs and the uniform colour of the fur. The general tint of the latter is bright sandy rufous, becoming richer on the head, and frequently with the tip of the muzzle and a horseshoe-mark on the crown brown. Height at withers about  $19\frac{1}{2}$  inches.

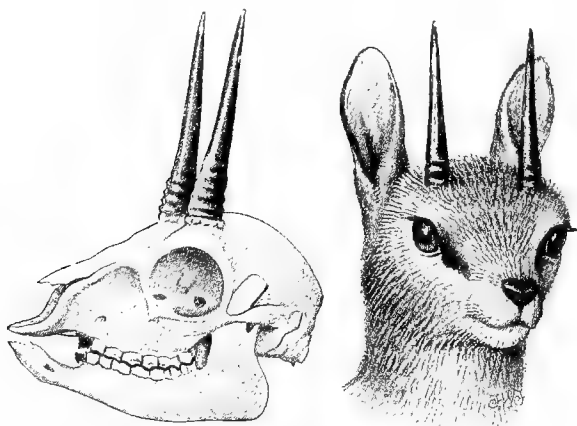
*Distribution*.—Africa south of the Zambesi on the east, and the Cunene on the west; northwards of the Tana to Nyasaland represented by Neumann's steinbok (*R. campestris neumanni*), distinguished by the absence of dark markings on the head. Probably owing to its small size, the steinbuck has managed to escape the fate that has befallen so many of the South African antelopes. Wherever the traveller journeys on the veldt, he is almost certain to meet this species, which may be regarded as the most familiar game animal of the plains. Like many of its kindred, it is independent of water, and can thus exist in the heart of the Kalahari, where water may not occur for a distance of fully fifty miles. The excellence of its flesh renders it a welcome addition to the bag of the hungry



hunter; and in addition to affording sport with the shot-gun, or, more rarely, the rifle, steinbuck may either be hunted with foxhounds or coursed with greyhounds.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-6 $\frac{7}{8}$	...	...	Graffreinett . .	F. H. Barber.
-5 $\frac{7}{8}$	...	...	Kikumbulin . . .	W. Russell Bowker.
-5 $\frac{7}{8}$	1 $\frac{7}{8}$	3	?	Mr. Justice Hopley.
-5 $\frac{3}{4}$	1 $\frac{3}{4}$	1 $\frac{7}{8}$	?	J. Whitaker.
-5 $\frac{5}{8}$	2	1 $\frac{1}{4}$	?	Julius Jeppe.
1 $\frac{1}{2}$	..	1 $\frac{0}{16}$	Kimberley . . .	F. C. Selous.
-5 $\frac{1}{2}$	...	...	?	O. R. Dunell.
5 $\frac{3}{8}$	?	1 $\frac{3}{4}$	E. Africa . .	E. Gedge.
-5 $\frac{1}{4}$	...	...	?	Cape Town Museum.
-5 $\frac{1}{4}$	1 $\frac{3}{8}$	2 $\frac{7}{8}$	Cape Colony . . .	F. R. N. Findlay.
5 $\frac{1}{8}$	1 $\frac{3}{4}$	2	?	Julius Jeppe.
5	...	2 $\frac{1}{2}$	E. Africa . .	Sir John Willoughby, Bart.
5	1 $\frac{7}{8}$	2 $\frac{7}{8}$	S.E. Africa . .	Dr. W. P. Y. Bainbrigge.
-4 $\frac{3}{4}$	1 $\frac{3}{4}$	1 $\frac{5}{8}$	Do. . .	James J. Harrison.
4 $\frac{5}{8}$	1 $\frac{1}{2}$	2 $\frac{3}{4}$	Portuguese E. Africa .	F. Vaughan Kirby.
4 $\frac{5}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$	S. Africa . . .	G. Richards.
4 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{4}$	Mashonaland . .	Jff. Darling, British Museum.
4 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{3}{8}$	?	Major H. J. Gould-Adams, C.B., C.M.G.
4 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{5}{8}$	S. Africa . . .	H. and C. Beddington.
4 $\frac{1}{2}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	Do. . .	F. C. Selous.
-4 $\frac{1}{2}$	...	...	Matabeleland . .	T. E. Buckley.
-4 $\frac{1}{2}$	1 $\frac{7}{8}$	3 $\frac{1}{2}$	Barberton . . .	Dr. Percy Rendall.
4 $\frac{3}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	Tana Valley . . .	Sir Robert Harvey, Bart.
-4 $\frac{3}{8}$	...	...	Matabeleland . .	Major A. St. H. Gibbons.
4 $\frac{1}{8}$	1 $\frac{1}{2}$	2	Do. . . .	Rev. Dr. R. J. Nevin.
4 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{3}{4}$	E. Africa . . .	Lord Delamere.
4 $\frac{1}{2}$	1 $\frac{1}{2}$	2	Matabeleland . .	Major James Grant.
4 $\frac{1}{8}$	1 $\frac{7}{8}$	2 $\frac{1}{4}$	Sudan . . . .	Col. Ralph Vivian.
4 $\frac{1}{8}$	1 $\frac{5}{8}$	2 $\frac{3}{8}$	Kaokoland . .	Capt. F. Cookson.
-4 $\frac{1}{8}$	...	...	?	C. T. Jones.
4 $\frac{3}{8}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	Zululand . . .	Lieut.-Col. Hon. W. Coke.
4	1 $\frac{5}{8}$	2 $\frac{3}{4}$	Matabeleland . .	Duke of Roxburghe.
-3 $\frac{7}{8}$	2	2	Komati Valley, S.A. .	Count E. Hoyos.

<sup>1</sup> Killed with hounds.



Skull and Head of Male Klipspringer, from specimens shot in Somaliland by Major H. G. C. Swayne.

**KLIPSPRINGER (*Oreotragus saltator*).**

*Alakud* of the Somalis.

*Ikumi* of the Basutos.

*Chibila* in the Chilala and Chibisa countries.

*Klipbok* of the Boers.

*Ingululu* of the Makalakas.

*Ligoka* of the Zulus and Swazis.

*Njerere* in the Batoka country.

*Sass* of the Abyssinians.

Not only from the other members of the oribi group, but from antelopes of all kinds, the agile little klipspringer, or "rock-jumper," is distinguished by the peculiar conformation of its hoofs and the structure of its hair. The former are large, cylindrical, blunt, and so situated in regard to the rest of the limb, that the animal walks on what corresponds to their tips in other antelopes, the whole hoof thus rising vertically from the ground. As regards the hair, this may best be compared with that of the musk-deer, having the same brittle, pithy structure. Lateral hoofs are retained; the tail is reduced to a mere rudimentary stump; and the horns of the bucks rise nearly vertically from the head, with a slight forward curvature, and are ringed for their basal third. The speckly olive-gray hue of the fur is too well known to need description. Height at shoulder from about 20 to 22 inches.

*Distribution*.—Mountainous and rocky districts in South and East Africa, from the Cape northwards to Abyssinia. Klipspringer-shooting is the best mountain sport to be obtained in Africa; and a pair of

these active little animals bounding, as if made of indiarubber, from rock to rock is a sight never to be forgotten. To bag these exceedingly active and shy little antelopes, the sportsman, especially in the steep mountain ranges of Cape Colony, must, however, be prepared for a long and difficult stalk under a blazing sun. Except when they require its hair for stuffing saddles, the Boers leave the klipspringer alone ; which is doubtless one reason that it is still comparatively abundant. Its venison is of excellent quality.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
5 $\frac{3}{8}$	2 $\frac{1}{8}$	2 $\frac{7}{8}$	Mashonaland . . .	The late H. H. Eyre.
5 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{5}{8}$	Transvaal . . .	F. Vaughan Kirby.
4 $\frac{1}{2}$	2 $\frac{3}{10}$	2 $\frac{1}{10}$	Wittberg, Cape Colony	H. A. Bryden.
4 $\frac{1}{2}$	2	3 $\frac{1}{2}$	East Africa . . .	E. Gedge.
-4 $\frac{1}{2}$	...	...	Barberton . . .	Dr. Percy Rendall.
4 $\frac{3}{8}$	1 $\frac{3}{4}$	2 $\frac{1}{4}$	Matabeleland . . .	Hon. R. A. Ward.
4 $\frac{3}{8}$	2	3 $\frac{1}{4}$	S.E. Africa . . .	F. C. Selous.
4 $\frac{1}{4}$	2	3 $\frac{5}{8}$	Near Lake Rudolph . .	H. S. H. Cavendish.
-4 $\frac{1}{2}$	2 $\frac{1}{2}$	3	Somaliland . . .	C. V. A. Peel.
-4 $\frac{1}{4}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	South Africa . . .	A. Ohlsson.
-4 $\frac{1}{4}$	1 $\frac{5}{8}$	2 $\frac{1}{8}$	Do. . . . .	Mr. Justice Hopley.
-4 $\frac{1}{8}$	2	2 $\frac{1}{2}$	Somaliland . . . . .	Sir Edmund G. Loder, Bart.
4 $\frac{1}{8}$	2 $\frac{1}{2}$	1 $\frac{3}{4}$	North Nyasaland . . .	James Yule.
4	1 $\frac{1}{2}$	2	East Africa . . . . .	Lord Delamere.
4	1 $\frac{7}{8}$	2 $\frac{1}{8}$	? . . . . .	Mr. Justice Hopley.
4	2 $\frac{1}{8}$	1 $\frac{1}{4}$	Matabeleland . . . . .	W. W. Ashley.
4	2 $\frac{1}{2}$	1 $\frac{7}{8}$	South Africa . . . . .	H. and C. Beddington.
3 $\frac{7}{8}$	2 $\frac{1}{8}$	2	Do. . . . .	A. Beit.
3 $\frac{3}{4}$	2	2 $\frac{1}{4}$	East Africa . . . . .	J. Gardiner Muir.
3 $\frac{1}{4}$	1 $\frac{3}{4}$	2 $\frac{3}{8}$	Somaliland . . . . .	Prince Boris Czetwertynski.
3 $\frac{3}{4}$	2	2	Do. . . . .	T. W. H. Clarke.
3 $\frac{3}{4}$	...	1 $\frac{7}{8}$	Abyssinia . . . . .	British Museum.
-3 $\frac{3}{4}$	2 $\frac{3}{8}$	3 $\frac{1}{8}$	South Africa . . . . .	Dr. W. P. Y. Bainbrigge.
-3 $\frac{1}{4}$	2	2	Do. . . . .	Julius Jeppe.

**KLIPSPRINGER** (*Oreotragus saltator*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-3 $\frac{3}{4}$	...	...	Matabeleland . .	J. Brander Dunbar.
3 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{7}{8}$	Somaliland .	The late W. Babington.
3 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	Matabeleland .	Hon. John Ward.
3 $\frac{1}{2}$	2	2 $\frac{3}{4}$	Do. .	R. A. Cooper.
-♀ 3 $\frac{1}{2}$	...	...	East Africa .	F. J. Jackson, C.B.
3 $\frac{8}{8}$	1 $\frac{7}{8}$	2	Abyssinia . .	Viscount Edmond de Poncins.
3 $\frac{1}{4}$	1 $\frac{7}{8}$	2	South Africa .	G. Richards.
3 $\frac{1}{4}$	...	...	Somaliland	Major H. G. C. Swayne.
-3 $\frac{1}{4}$	1 $\frac{3}{4}$	4	?	Dublin Museum.
3 $\frac{1}{16}$	1 $\frac{7}{8}$	2	Abyssinia .	Viscount Edmond de Poncins.
3	1 $\frac{7}{8}$	2 $\frac{3}{4}$	Somaliland .	G. D. E. Chapman.
3	1 $\frac{5}{8}$	1 $\frac{3}{4}$	Do. .	W. W. Ashley.
3	...	...	?	Cape Town Museum.



Horns of Waterbuck, F. H. Barber's specimen.

**COMMON WATERBUCK** (*Cobus ellipsiprymnus*).

<i>Kooli</i> in the Chilala and Chibisa countries.	<i>M'dongoma</i> or <i>Matutwi</i> in the Barotse country.
<i>Kring-gaat</i> of the Dutch.	Swahili name <i>Koru</i> .
<i>Li Tumogha</i> of the Matabele.	<i>Tumoga</i> of the Bechuanas.

The waterbucks and their near allies the kobs, together with the reedbucks and vaal rhebok, constitute a well-defined group of large or medium African antelopes presenting the following characteristics. They have the muzzle naked, no face-glands, a moderately long tail, well-developed lateral hoofs, and the horns confined to the bucks. In shape and size the horns are variable, being either long or medium, but never spirally twisted, and always with smooth tips, below which they are ridged; usually they are at first inclined somewhat backwards, after which they are curved upwards and more or less forwards, although they may have a sinuous curvature, and in the vaal rhebok are straight. The upper molar teeth are tall and narrow. In the

waterbucks and kobs, which include the largest representatives of the group, there are no naked patches on the head below the ears, the tail is comparatively long, with a slight terminal tuft, and the lateral hoofs are large. A characteristic feature of the skull is the presence of a deep hollow in the forehead. From its allies the true or common waterbuck is recognisable at a glance by the elliptical white ring on the buttocks, which extends downwards to the thighs. Height at shoulder about 43 inches to 53.

*Distribution.*—Africa north of the Limpopo along the eastern coast region as far as the Shebeyli River in Somaliland; thus including Nyasaland and British and German East Africa. Never, apparently, very abundant, this handsome antelope, whose head and horns form one of the chief prizes of the South African hunter, has had its range much curtailed of late years. Its present strongholds are the unhealthy districts between the Sabi and Zambesi, the affluents of the latter river, and the Chobi, Okavango, and other rivers above Lake Ngami. Although the flesh is uneatable by Europeans, the excellence of the hide for shoe-leather causes the kring-gaat, as it is called by the Boers, to be persistently hunted.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-36½	...	...	Delagoa Bay . .	F. H. Barber. (See illustration.)
-36½	...	...	South Africa . .	O. R. Dunell.
-35½	9	14	?	Mr. Justice Hopley.
-34½	...	...	Limpopo Valley . .	H. T. and A. H. Glynn.
-33½	10½	21½	S.E. Africa . . .	F. Vaughan Kirby.
33½	9½	21½	Do. . . .	Hon. Walter Rothschild.
33	9½	11½	Mashonaland . .	F. C. Selous, British Museum.
33	8½	24	Do. . . .	J. G. Millais.
-33	8½	17½	Do. . . .	A. Ohlsson.
-33	...	...	Lake Ngami . .	Cape Town Museum.
32½	9½	21½	South Africa . . .	Sir Victor Brooke's Collection.
31½	9½	24	Zululand . . . .	Capt. L. O. Williams.
-31½	8½	21½	North of Pungwe . .	Count E. Hoyos.
-31½	9	17	?	Julius Jeppe.
31½	8½	21½	?	British Museum.
31½	10½	13½	Pungwe . . . .	Earl of Dunmore.

COMMON WATERBUCK (*Cobus ellipsiprymnus*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
31 $\frac{1}{4}$	9 $\frac{5}{8}$	19 $\frac{1}{4}$	?	Sir Edmund G. Loder, Bart.
-31 $\frac{1}{4}$	.	...	Transvaal . . .	C. T. Jones.
31	...	...	Mashonaland . . .	F. C. Selous.
-31	9 $\frac{3}{4}$	17	E. C. Africa . . .	James J. Harrison.
30 $\frac{3}{4}$	8	23 $\frac{1}{4}$	Pungwe . . .	Capt. Lord Douglas Compton.
30 $\frac{1}{2}$	8 $\frac{3}{4}$	25	Do. . .	R. Hughes.
-30 $\frac{1}{2}$	9 $\frac{1}{2}$	16 $\frac{1}{2}$	E. C. Africa . . .	James J. Harrison.
-30 $\frac{1}{2}$	9	26	Do. . .	Julius Jeppe.
30 $\frac{3}{8}$	9 $\frac{1}{8}$	23 $\frac{1}{2}$	Zululand . . .	A. J. Brandon.
-30 $\frac{1}{8}$	...	...	Maccloutsie . . .	Capt. G. F. T. Leather.
30 $\frac{1}{8}$	8 $\frac{1}{2}$	13 $\frac{7}{8}$	Mashonaland . . .	F. C. Selous.
-30	9 $\frac{1}{2}$	11 $\frac{1}{4}$	Komati River, S. Africa .	Count E. Hoyos.
29 $\frac{7}{8}$	9 $\frac{1}{8}$	12 $\frac{7}{8}$	Zululand . . .	Hon. Charles Ellis.
29 $\frac{3}{4}$	9 $\frac{1}{2}$	21 $\frac{7}{8}$	Mashonaland . . .	F. C. Selous.
-29 $\frac{3}{4}$	...	...	Somaliland . . .	Dr. Donaldson Smith.
-29 $\frac{9}{16}$	9 $\frac{7}{16}$	19 $\frac{1}{16}$	Danakil . . .	Prince A. de Lucinge.
29 $\frac{3}{8}$	9 $\frac{3}{8}$	...	Zululand . . .	A. H. Neumann.
29	9 $\frac{1}{4}$	5 $\frac{1}{2}$ malformed	Do. . .	A. W. Davis.
29	10 $\frac{3}{4}$	16	Sabi River . . .	Sir Thomas Fowler, Bart.
29	9 $\frac{1}{2}$	26	East Africa . . .	E. Gedge.
29	9 $\frac{1}{2}$	16 $\frac{1}{2}$	Do. . .	Major W. H. Williams.
-29	8 $\frac{1}{2}$	19	Do. . .	T. E. Buckley.
29	9	16	South Africa . . .	Lieut.-Col. Hon. W. Coke.
29	9	14 $\frac{5}{8}$	Pungwe . . .	Capt. F. H. Lehmann.
29	9	12 $\frac{3}{4}$	Do. . .	R. A. Cooper.
29	8 $\frac{5}{8}$	19 $\frac{3}{4}$	Do. . .	Frank Harris.
-29	8	22 $\frac{1}{4}$	Do. . .	C. C. Gouldsmith.
28 $\frac{3}{4}$	9 $\frac{1}{8}$	21 $\frac{3}{8}$	?	H.R.H. the Duke of Saxe-Coburg and Gotha.
28 $\frac{3}{4}$	8	27	Shiré Valley . . .	H. H. Williams.
28 $\frac{3}{4}$	8	15 $\frac{1}{4}$	South Africa . . .	G. H. M. Banks.

COMMON WATERBUCK (*Cobus ellipsiprymnus*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
28 $\frac{1}{2}$	8 $\frac{3}{4}$	15 $\frac{1}{4}$	Pungwe . . .	Viscount Ennismore.
-28 $\frac{1}{2}$	8 $\frac{1}{4}$	...	Shiré Valley . .	Staff-Surgeon J. Dowson, R.N.
-28	10 $\frac{3}{4}$	8	S.E. Africa .	T. E. Buckley.
-28	...	18	East Africa .	Sir John Willoughby, Bart.
28	9	18	Matabeleland . .	Major James Grant.
28	8 $\frac{1}{2}$	13 $\frac{1}{2}$	Pungwe .	Durban Museum.
28 $\frac{1}{2}$	8	22 $\frac{1}{2}$	Do. .	H. R. Holden.
27 $\frac{3}{4}$	9 $\frac{1}{4}$	14 $\frac{3}{4}$	East Africa . .	F. J. Jackson, C.B.
-27 $\frac{3}{4}$	8 $\frac{3}{4}$	10 $\frac{1}{2}$	Barberton . .	Dr. Percy Rendall.
27 $\frac{5}{8}$	8	9 $\frac{7}{8}$	Zululand	Major-Gen. Sir Arthur Ellis, K.C.V.O.
27 $\frac{1}{2}$	8 $\frac{3}{4}$	22	South Africa	D. Norman Ritchie.
27 $\frac{1}{2}$	8 $\frac{1}{2}$	18	Pungwe . .	G. L. Bonham.
27 $\frac{1}{4}$	8 $\frac{3}{4}$	16 $\frac{3}{4}$	Barotseland .	H. Timmins.
27 $\frac{1}{4}$	9 $\frac{1}{4}$	13 $\frac{1}{2}$	East Africa	J. Gardiner Muir.
27	9 $\frac{1}{2}$	13	Zululand . . .	A. Cameron.
27	8	15 $\frac{3}{4}$	Pungwe . .	Lord Edward Manners.
27	8 $\frac{3}{8}$	17 $\frac{1}{2}$	Danakil . .	Viscount Edmond de Poncins.
27	8	17 $\frac{3}{4}$	Pungwe . .	Ford G. Barclay.
27	7 $\frac{1}{4}$	34 $\frac{1}{2}$	Zambesia . . .	Comdr. A. T. Hunt.
27	9	4 $\frac{3}{4}$	Matabeleland . .	W. Crosley.
26 $\frac{3}{4}$	9	18 $\frac{1}{2}$	Pungwe . .	Capt. G. F. Henry.
26 $\frac{3}{4}$	8 $\frac{1}{4}$	14	Do. . . .	Col. G. A. Percy.
26 $\frac{3}{4}$	6 $\frac{1}{2}$	18 $\frac{1}{4}$	E. C. Africa .	Lord Delamere.
26 $\frac{1}{2}$	8	11 $\frac{1}{4}$	Do. . .	Lord Edward Manners.
-26 $\frac{1}{2}$	8 $\frac{1}{2}$	15 $\frac{1}{2}$	Masailand . .	Count Scheibler.
-26	8	17 $\frac{1}{2}$	South Africa . .	Dublin Museum.
-26	8 $\frac{1}{4}$	18	Do. .	James J. Harrison.
-26	7 $\frac{1}{2}$	20 $\frac{1}{4}$	Do. .	Dr. W. P. Y. Bainbrigge.
25 $\frac{7}{8}$	8 $\frac{3}{8}$	17 $\frac{1}{2}$	Sudan	Col. Ralph Vivian.
25 $\frac{5}{8}$	8 $\frac{1}{4}$	11	East Africa	The late Capt. Speke, British Museum.

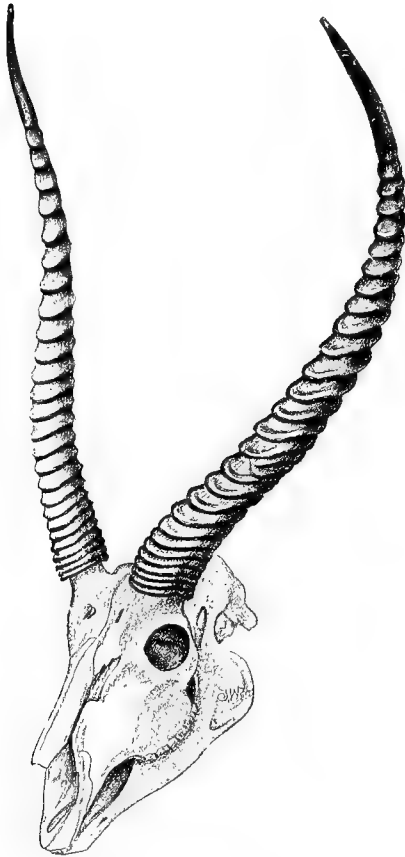


**COMMON WATERBUCK** (*Cobus ellipsiprymnus*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
25 $\frac{1}{2}$	8 $\frac{1}{2}$	19 $\frac{1}{2}$	British Central Africa .	J. E. Gough.
25 $\frac{3}{8}$	7 $\frac{3}{4}$	18 $\frac{1}{2}$	?	Lord Delamere.
25 $\frac{1}{4}$	8 $\frac{3}{4}$	13 $\frac{7}{8}$	East Africa . . .	Sir Robert Harvey, Bart.
25 $\frac{1}{8}$	8	13 $\frac{3}{4}$	Do. . . . .	H. C. V. Hunter.
24 $\frac{1}{4}$	7 $\frac{1}{2}$	9 $\frac{3}{4}$	Somaliland . . .	W. D. James.
23.6	8.13	10.1	British East Africa .	Prince Henry of Liechtenstein.
22 $\frac{3}{4}$	6 $\frac{3}{4}$	15 $\frac{1}{4}$	Somaliland . . .	Major H. G. C. Swayne.
22 $\frac{1}{4}$	7 $\frac{1}{2}$	12 $\frac{7}{8}$	Do. . . . .	A. H. Straker.
22	7 $\frac{1}{4}$	9 $\frac{1}{4}$	Do. . . . .	Prince Demeter Ghika.
21 $\frac{3}{4}$	7 $\frac{1}{4}$	9 $\frac{7}{8}$	Do. . . . .	Count E. Hoyos.



Head of Common Waterbuck, from a specimen shot in Somaliland.



Skull of Male Sing-sing Waterbuck, from a specimen in the British Museum.

**SING-SING WATERBUCK (*Cobus defassa*).**

Distinguished from the common water-buck (*C. ellipsiprymnus*) by the presence of a large white patch on the lower part of the buttocks, instead of a white elliptical ring extending higher up. Four more or less distinct local races of this species may be recognised. First, the West African sing-sing (*C. defassa unctuosus*), of Senegal and Gambia, characterised by its rufous colour and the small amount of white in the region of the eye. Second, Crawshay's sing-sing (*C. defassa crawshayi*), from British Central Africa, with a dusky coloration. Third, Penrice's sing-sing (*C. defassa penricei*), from the interior of Benguela, Angola, in which the colour is so dark as to be almost black.

And, fourth, the defassa sing-sing (*C. defassa typicus*), extending from Western Abyssinia through Sennar, Kordofan, and the valley of the White Nile to Uganda and British and German East Africa, in which the ears are longer and more pointed, and there is more white in the region of the eye than in the other races; the general colour being rufous. The four races are frequently regarded as distinct species, but they are so evidently local modifications of a single somewhat variable form that it appears far preferable to include them all under a single specific heading.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
<sup>1</sup> -35½	...	...	Near Toru	Major C. G. H. Sitwell.
-29⅔	8⅝	29⅔	Sudan . . .	Count T. Palffy.
-29	9½	17½	?	Dublin Museum.
-29	8⅝	28⅔	Upper Basaland, Abyssinia	J. Menges.
-29	8	6½	?	Julius Jeppe.
-27⅔	8⅝	9⅔	Sudan . . .	Count T. Palffy.
27⅔	8⅝	13½	?	British Museum.
27¼	7½	18¼	Atbara Valley, Abyssinia .	Do.
-27¼	9	12	East Africa . . .	Lord Delamere.
27¼	7½	18¼	Atbara Valley, Abyssinia	British Museum.
27	8	15¼	Kavalli, Lake Albert . .	Col. Trevor Ternan.
26⅔	7¾	15⅝	Uganda .	The late Captain Speke, British Museum.
26¾	8⅝	15¼	East Africa	E. Gedge.
-26	7⅝	13¾	Borders of Lake Tchad	Paris Museum.
25⅔	9	15¾	Bahr-el-Salam, Sudan	Lieut.-Col. Hon. W. Coke.
25¼	8¼	16¼	Kikuyu .	E. Russell.
25⅝	8⅝	13⅝	British East Africa	Hon. Walter Rothschild.
24⅝	8¾	16¼	Molo River .	G. E. Smith.
23½	8	8¾	?	Lord Delamere.

<sup>1</sup> Mr. F. R. Hicks favours me with this measurement.

**DEFASSA SING-SING (*Cobus defassa unctuosus*).**

See page 178.

Height at shoulder, 47 to 48 ins.—Major A. J. Arnold, D.S.O.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
24 $\frac{3}{4}$	8 $\frac{1}{2}$	...	Gambia . . .	Julius Jeppe.
-24 $\frac{1}{2}$	9	12	Nigeria	Dr. Percy Rendall.
24	7 $\frac{1}{4}$	15 $\frac{3}{4}$	Do.	P. A. Clive.
23 $\frac{3}{4}$	7 $\frac{1}{4}$	14 $\frac{1}{2}$	Do.	F. Swanzy.
23 $\frac{3}{4}$	7 $\frac{1}{2}$	13 $\frac{1}{4}$	Do.	Major A. J. Arnold, D.S.O.
23	7	16	Do. . .	Do.
23	7	13 $\frac{3}{4}$	Boussa, Nigeria	A. W. M. Brodie.
22 $\frac{7}{8}$	8 $\frac{1}{2}$	10 $\frac{3}{4}$	Nigeria . . .	Sir Edmund G. Loder, Bart.
22	7	17 $\frac{1}{4}$	Do.	Major G. S. C. Jenkinson.

**PENRICE'S SING-SING (*Cobus defassa penricei*).**

See page 178.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
29	8 $\frac{3}{4}$	18 $\frac{1}{2}$	Benguela . . .	G. W. Penrice.
-28 $\frac{1}{4}$	8 $\frac{1}{4}$	11 $\frac{1}{2}$	Do. . .	A. Ohlsson.
28	8	22 $\frac{1}{2}$	Do. . .	G. W. Penrice.
24 $\frac{1}{2}$	8	9 $\frac{1}{8}$	Do. . .	Hon. Walter Rothschild.
20 $\frac{1}{4}$	6 $\frac{7}{8}$	12 $\frac{1}{4}$	Do. . . .	Julius Jeppe.



Horns of Mrs. Gray's Waterbuck, from Lieut.-Col. Hon. W. Coke's specimen.

**MRS. GRAY'S WATERBUCK** (*Cobus maria*).

This species is the last of the typical group of *Cobus*, in all the members of which the size is large, the fur grizzled, and the neck maned. From the preceding species Mrs. Gray's waterbuck differs by the presence of an hour-glass-shaped white area on the back of the neck, and the form of the horns, which are highly sinuous and inclined backwards; the general colour of the fur being dark reddish brown. Height at shoulder apparently from 35 to 40 inches.

*Distribution.*—The swamps bordering the White Nile and its tributaries.

Very rare in collections, being represented by complete specimens only in the museums of Vienna and Berlin. It was discovered by Heuglin, but has been confounded with the very different white-eared kob.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
30 $\frac{1}{2}$	6 $\frac{1}{2}$	17	?	Berlin Museum.
29 $\frac{3}{4}$	6 $\frac{1}{4}$	12	?	Hon. Walter Rothschild.
26 $\frac{3}{8}$	6 $\frac{7}{8}$	13 $\frac{3}{4}$	Arwan, Bahr-el-Ghazal	The late Consul J. Petherick, Brit. Mus.
26 $\frac{1}{2}$	6 $\frac{1}{2}$	12	White Nile.	Lieut.-Col. Hon. W. Coke.

### WHITE-EARED KOB (*Cobus leucotis*).

The smaller antelopes included in the genus *Cobus* may be popularly termed kobs, and differ from the water-bucks not only by their inferior size, but by the uniformly rufous hue of the upper parts, and the absence of a mane on the neck. From its allies the present species is sufficiently distinguished by the white outer surface of the ears and upper part of the head, including the region of the eyes. Height at shoulder about 34 or 35 inches.

*Distribution*.—The region of the Upper Nile, including the Sobat, Bahr-el-Ghazal, and their tributaries, and extending to the Niam-Niam country. The first known example was sent to Berlin by the German artist and traveller Werne, who obtained it in Sennar.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
21 $\frac{5}{8}$	7 $\frac{7}{8}$	13 $\frac{1}{8}$	White Nile	Paris Museum.
20	7	7 $\frac{1}{2}$	Do.	Berlin Museum.
19 $\frac{7}{8}$	6 $\frac{3}{8}$	7 $\frac{1}{4}$	Bahr-el-Ghazal	British Museum.
19 $\frac{1}{8}$	5 $\frac{7}{8}$	9 $\frac{1}{2}$	Do.	The late Consul J. Petherick, British Museum.
17 $\frac{1}{4}$	6	7 $\frac{1}{4}$	?	Sir Victor Brooke's Collection.



Frontlet and Horns of Buffon's Kob.

**BUFFON'S KOB** (*Cobus cob*).

In common with the Uganda kob and the puku (*C. vardonii*), this species has the back of the ears rufous like the body; and it agrees with the latter of these in having the horns less than twice the length of the head, the hair short, and the front of the fore-legs black; its peculiar distinctive features being the presence of a white line over each eye and its comparatively small size, the approximate height at the shoulder being from 32 to 33 inches.

Although this species was known to the French naturalist Buffon, it is only of late years that its affinities have been fully worked out. The puku differs from both this species and the under-mentioned sunu by its much longer hair and the absence of the black down the front of the legs.

*Distribution*.—West Africa, from the Gambia to Nigeria.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
19 $\frac{3}{4}$	6 $\frac{3}{4}$	7 $\frac{1}{2}$	Nigeria . . .	Captain A. H. Festing.
18 $\frac{3}{4}$	5 $\frac{1}{2}$	7 $\frac{1}{2}$	Do. . . . .	Captain J. S. Brogden.
17 $\frac{1}{4}$	...	...	Do. . . . .	Major A. F. Mockler-Ferryman.
16 $\frac{3}{4}$	6	7	Do. . . . .	Major A. J. Arnold, D.S.O.

**BUFFON'S KOB (*Cobus kob*)—*continued*.**

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
16 $\frac{3}{4}$	5 $\frac{1}{2}$	8	Ibi District . .	Carl Jeppe.
16 $\frac{1}{2}$	6	7 $\frac{3}{8}$	Do. . .	Mr. Justice Hopley.
16	5 $\frac{3}{4}$	7 $\frac{3}{4}$	?	Sir Edmund G. Loder, Bart.
15 $\frac{1}{2}$	5 $\frac{7}{8}$	7	Ibi District . .	Julius Jeppe.
15 $\frac{1}{2}$	6 $\frac{1}{4}$	8	Gando, Western Sudan	J. W. Carroll.
13 $\frac{1}{2}$	6	7 $\frac{1}{4}$	Gaboon . . .	Hon. Walter Rothschild.
9 $\frac{1}{2}$	5	3	Gambia . . .	A former Earl of Derby, British Museum.
8	4 $\frac{5}{8}$	4 $\frac{5}{8}$	Do. . .	Do.



Head of Lichi.





Skull of Uganda Kob, from a specimen shot by F. J. Jackson.

### UGANDA KOB (*Cobus thomasi*).

The East African representative of Buffon's kob, from which it is distinguished mainly by its superior size, and the presence of a complete white ring round each eye, instead of having only a white line above the same. General colour rich fulvous, with the muzzle, lips, chin, under parts, and inner surfaces of upper portion of fore-legs and thighs white; front of fore-legs with a black line, and hind-legs with a similar line, which does not, however, ascend within some distance of the hocks. Height at shoulder about  $35\frac{1}{2}$  inches.

*Distribution*.—East Africa, from Kavirondo to Uganda.

Native name, *Sunu* or *N'Sunu*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
20 $\frac{1}{8}$	7	9 $\frac{1}{8}$	North end of Lake Albert	Col. Trevor Ternan.
19 $\frac{3}{8}$	7	9 $\frac{7}{8}$	Victoria Nyanza	E. Gedge.
18 $\frac{1}{2}$	6 $\frac{5}{8}$	8 $\frac{5}{8}$	Lake Albert	Col. F. D. Lugard, C.B., D.S.O.
18 $\frac{1}{2}$	...	...	Lake Victoria	Major W. H. Williams.
18	7 $\frac{1}{4}$	11 $\frac{1}{2}$	Uganda	E. Gedge.
17 $\frac{1}{2}$	6 $\frac{3}{4}$	11 $\frac{1}{4}$	Do.	M. F. Gage.
17 $\frac{3}{8}$	6 $\frac{1}{2}$	7 $\frac{3}{4}$	Kavirondo	F. J. Jackson, C.B.
17 $\frac{1}{4}$	7 $\frac{1}{2}$	5 $\frac{1}{2}$	Do.	Rowland Ward.
17 $\frac{1}{8}$	7	5	Do.	F. J. Jackson, C.B., British Museum.
17	5 $\frac{1}{2}$	9 $\frac{1}{4}$	East Africa	Paris Museum.
16 $\frac{7}{8}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	Uganda	Sir Edmund G. Loder, Bart.
16	6 $\frac{3}{4}$	10	East Africa	F. H. Barber.
15 $\frac{3}{4}$	5 $\frac{3}{4}$	10 $\frac{1}{4}$	Do.	Julius Jeppe.
14 $\frac{3}{4}$	6	9 $\frac{1}{4}$	Victoria Nyanza	C. F. S. Vandeleur, D.S.O.



F. H. Barber's Lichi Horns.

**LICHI or LECHWE** (*Cobus lichi*).

*Lechwí* in the Barotse and Lake      *Lechi*, Lee-gwee of the Makololo.  
 Ngami countries.      *Inya* of the Masubias.  
*Njha* in the Chilala and Chibisa      *Oonya* of the Makubas.  
 countries.

In this handsome antelope the horns are longer than in its allies, considerably exceeding twice the length of the head, while the front of the fore-legs is black, and the hair long. Height at shoulder, 40 or 41 inches.

Like the puku, this kob was discovered by Livingstone and his companions Oswell and Murray during their journey to Lake Ngami in 1849. In point of size it approximates to the true waterbucks, from which, however, in addition to the features already mentioned, it may always be distinguished by its lighter and more graceful build. The general colour is fulvous, of a lighter tint than in the Uganda kob.

The lichi affords excellent and often exciting sport for the gunner. Seldom found very far from water, this antelope is most abundant in the lagoons and swamps created by the annual rising of the Upper

Zambesi, the Botletli, Chobe, Tamulakan, and other rivers of the interior, in localities where the surrounding flats are inundated for some part of the year. The lichi seldom ventures into the deep rivers from fear of the crocodiles, but among the reed beds, the shallow lagoons, and flooded flats it is a familiar figure. It is often to be found, in the less accessible regions, in vast herds. An excellent swimmer, it can progress by a succession of splashing bounds at great speed through the lagoons and shallows. It is extremely tenacious of life, and requires very straight powder. The thick rufous-yellow coat of the lichi is extremely handsome, and the skin is greatly prized by the natives.

*Distribution.*—Zambesia, reaching northwards to Lake Mweru, and to Lake Ngami towards the south-west.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-33½	7	26¾	Lake Bangweolo	Poulett-Weatherley.
-28½	...	...	Zambesia . .	F. H. Barber. (See illustration.)
28	...	...	?	T. Poole.
27¾	8	14	Okavango Valley .	Major H. J. Goold-Adams, C.B., C.M.G.
27½	10¾	19½	Chobe Valley . .	F. C. Selous, British Museum.
27¼	8	14¾	Do. .	F. C. Selous.
-27	7½	14	Okavango Valley	Sir Edmund G. Loder, Bart.
-26½	9	20½	?	Julius Jeppe.
26½	8¾	21	South Africa .	A. Beit.
-26¼	6¾	16	?	Mr. Justice Hopley.
26½	8	15 (about)	Linyanti, Chobe Valley	F. C. Selous.
25¾	7½	12¾	?	G. Richards.
25¼	7½	18	Zambesia . .	T. E. Buckley.
-25¾	7½	13¾	Do. .	Dr. Holub, Paris Museum.
-25½	7½	16½	?	Julius Jeppe.
-25¾	7½	14½	Lake Ngami	Dr. Percy Rendall.
25¼	7¾	11½	?	Mr. Justice Hopley.
24¼	7	19½	?	R. A. Cooper.
24½	7½	11½	South Africa . .	Hon. Walter Rothschild.
24¾	7¾	13¾	Zambesia .	The late J. S. Jameson.
24½	...	...	Do. .	C. T. Jones.
24	7½	12½	?	A. Ohlsson.
23½	7½	14½	Chobe Valley	F. C. Selous.
-23	...	...	Do.	O. R. Dunell.
23	9	9	Do.	E. Gedge.
22¾	6¾	12¾	Barotseland	R. T. Coryndon.



Head of Puku, from a specimen in the British Museum.

**PUKU** (*Cobus vardonii*).

*Impookoo* of the Masubias.

*Pookoo* in the Lake Ngami country.

*Muntinya* in the Barotse country.

*Señla* in the Chilala and Chibisa countries.

From the other small kobs with the back of the ears rufous, the puku is distinguishable at once by the uniformly foxy colour of the fore-legs, as well as by the greater length of the hair, especially in the region of the back and loins, where it has a tendency to curl. General colour reddish-yellow. Height at shoulder about 39 or 40 inches.

*Distribution*.—Mainly confined to a narrow belt of country extending along the southern bank of the Chobe for about sixty miles from its junction with the Zambesi. The herds are small, seldom including more than ten or a dozen individuals.

PUKU (*Cobus vardonii*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
20 $\frac{1}{2}$	8 $\frac{1}{2}$	12 $\frac{1}{2}$	Luswesi Valley . .	F. Smitheman.
19 $\frac{1}{8}$	6 $\frac{3}{4}$	8 $\frac{1}{2}$	South Africa	J. Carr Saunders.
-18 $\frac{5}{8}$	...	...	Njoko Valley . .	Major A. St. H. Gibbons.
18 $\frac{3}{8}$	6 $\frac{3}{8}$	9 $\frac{1}{2}$	Barotseland . .	R. T. Coryndon.
-18	6 $\frac{1}{2}$	9	Luwulé Valley, Congo Free State	Poulett-Weatherley.
18	6 $\frac{1}{4}$	8 $\frac{3}{4}$	Luapulu Valley .	F. Smitheman.
17 $\frac{1}{2}$	6 $\frac{1}{2}$	7	Bangweolo . .	Do.
17 $\frac{1}{2}$	6 $\frac{3}{4}$	5 $\frac{1}{2}$	Barotseland . .	R. T. Coryndon.
-17 $\frac{1}{2}$	7	6 $\frac{5}{8}$	Choma Valley, B.C.A.	R. H. Ferrers Stranack.
17 $\frac{3}{8}$	6 $\frac{1}{4}$	18 malformed	Kabampo Valley .	Major H. J. Goold-Adams, C.B., C.M.G.
16 $\frac{3}{4}$	6 $\frac{1}{2}$	8 $\frac{3}{4}$	Do. . .	Do.
-16 $\frac{3}{4}$	6 $\frac{1}{4}$	7 $\frac{1}{2}$	Luwulé, B.C.A. . .	Poulett-Weatherley.
-16 $\frac{1}{4}$	7	6 $\frac{1}{2}$	Choma Valley, B.C.A.	Julius Jeppe.
16 $\frac{1}{4}$	6 $\frac{5}{8}$	7 $\frac{1}{2}$	South Africa . .	British Museum.
16	6 $\frac{1}{2}$	6 $\frac{3}{4}$	South bank of Chobe Valley	F. C. Selous.
16 $\frac{3}{8}$	6 $\frac{3}{4}$	5 $\frac{7}{8}$	Choma Valley, B.C.A.	Mr. Justice Hopley.
16	5 $\frac{1}{2}$	4 $\frac{3}{4}$	West Nyasaland . .	C. C. Bowring.
-16	6 $\frac{1}{2}$	8	?	A. Ohlsson.
<sup>1</sup> -15 $\frac{3}{4}$	...	...	Njoko Valley . .	R. T. Coryndon.
15 $\frac{3}{8}$	6 $\frac{1}{8}$	5 $\frac{1}{8}$	British Central Africa	Rowland Ward.
15 $\frac{3}{8}$	6 $\frac{1}{2}$	6 $\frac{5}{8}$	Chobe Valley . .	F. C. Selous.
15 $\frac{1}{8}$	6	10	South Africa . .	J. Carr Saunders.
<sup>2</sup> 15 $\frac{1}{8}$	...	...	Njoko Valley	R. T. Coryndon.
-15	6 $\frac{1}{4}$	6 $\frac{1}{4}$	Zambesia . . .	T. E. Buckley.
<sup>3</sup> -15	...	...	Njoko Valley . .	R. T. Coryndon.
14 $\frac{5}{8}$	6 $\frac{1}{4}$	7 $\frac{1}{2}$	Lofu Valley, B.C.A. .	John Yule.
14 $\frac{1}{2}$	6 $\frac{1}{4}$	3 $\frac{1}{2}$	British Central Africa	Julius Jeppe.
14 $\frac{1}{8}$	6 $\frac{5}{8}$	5 $\frac{1}{8}$	Chobe Valley . .	F. C. Selous, British Museum.

<sup>1</sup> Weight as he fell, 177 lbs.

<sup>2</sup> Weight as he fell, 185 lbs.

<sup>3</sup> Weight as he fell, 196 lbs.



Head of Vaal Rhebok.

**GRAY or VAAL RHEBOK (*Pelea capreolus*).***Iliza* of the Swazis.*Pshiatla* of the Basutos.*Peeli* of the Bechuanas.

The short, upright, straight, and slender horns, together with the somewhat woolly nature of the hair, serve to differentiate the vaal rhebok from the antelopes of the kindred genera. The tail, like that of the reedbucks, is short and bushy; the ears are tall and narrow; the build is slight and graceful; and the general colour is uniformly pale gray, tending somewhat to fawn on the head and limbs. Height at shoulder about 29 or 30 inches. The chief essential distinctions between this antelope and the reedbucks are the form of the horns and the absence of the bare patches below the eyes.

*Distribution*.—The open hilly districts of Africa south of the Zambesi.

In the mountain ranges of the eastern and northern districts of Cape Colony, and thence onwards to the Zambesi, the vaal rhebok affords good and exciting sport. And although its somewhat stiff

and stilty appearance is not at first suggestive of unusual activity, yet the pace and regularity with which a party of six or eight of these antelopes will race up the steep flank of a mountain are calculated to remove any doubts on this point. The most peculiar feature of the vaal rhebok is the soft and woolly nature of the gray coat; the horns afford but insignificant trophies, and the flesh is of decidedly poor quality for the table.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-11 $\frac{1}{2}$	...	...	Spitzkop	F. H. Barber.
-11 $\frac{1}{2}$	...	...	Cape Colony	Cape Town Museum.
-11	...	...	?	M. E. Bowker.
10 $\frac{3}{4}$	2	2 $\frac{1}{2}$	Basutoland	Julius Jeppe.
-10 $\frac{1}{2}$	2 $\frac{1}{8}$	4 $\frac{5}{8}$	Transvaal	H. T. and A. H. Glynn.
-10 $\frac{1}{2}$	...	...	Cape Colony	Cape Town Museum.
-9 $\frac{1}{2}$	2 $\frac{5}{8}$	2 $\frac{5}{8}$	?	Julius Jeppe.
-9 $\frac{1}{2}$	...	...	Transvaal	C. T. Jones.
-9 $\frac{3}{8}$	2	4 $\frac{1}{4}$	Basutoland	Sir A. Milner.
9 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	?	Dr. Oakshott.
9	2 $\frac{5}{8}$	2 $\frac{5}{8}$	?	Mr. Justice Hopley.
-8 $\frac{1}{16}$	2 $\frac{3}{4}$	Single horn	Barberton	Dr. Percy Rendall.
-8 $\frac{3}{4}$	2 $\frac{5}{8}$	3 $\frac{5}{8}$	?	A. Ohlsson.
8 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	Cape Colony	R. H. Venables-Kyrke.
8 $\frac{5}{8}$	2 $\frac{1}{2}$	2 $\frac{5}{8}$	South Africa	The late Dr. Burchell, British Museum.
8 $\frac{1}{2}$	2 $\frac{1}{2}$	2	?	G. Richards.
8 $\frac{3}{8}$	2	3 $\frac{1}{4}$	?	Sir Edmund G. Loder, Bart.
8 $\frac{1}{4}$	2	2 $\frac{7}{8}$	?	F. C. Selous.
-8 $\frac{1}{4}$	2 $\frac{1}{8}$	3 $\frac{3}{4}$	?	Dr. W. P. Y. Bainbrigge.
-8	2	3	Mauchberg	F. Vaughan Kirby.
7 $\frac{3}{4}$	...	...	?	O. R. Dunell.
7 $\frac{3}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	?	Hon. Walter Rothschild.
7 $\frac{1}{2}$	2 $\frac{3}{8}$	3	?	H. Atkinson.
7 $\frac{1}{4}$	2 $\frac{1}{4}$	3 $\frac{1}{2}$	Basutoland	A. Beit.
7	2	2 $\frac{1}{2}$	?	Capt. H. A. Livingstone.



Head of Common Reedbuck.

**COMMON REEDBUCK** (*Cervicapra arundinum*).*Bemba* of the Masaras.*Inseegee* of the Amandebele.*Im-vwee* of the Masubias.*Um-vwee* of the Makubas.*Inhlango* of the Swazis.*Iklabu* of the Basutos.*Impoyo* of the Lower Zambesi tribes.*Mziki* of the Zulus and Matabele.*Natafwu* in the Mashukulumbwi country.*Mutobo* in the Barotse country.*Sibughat* in the Lake Ngami country.*Mpoyo* in the Chilala and Chibisa country.

All the reedbucks, as the members of the genus *Cervicapra* may be collectively termed, differ from the waterbucks and kobs by their inferior



size, lighter build, and the presence of a completely bare or very short-haired patch on each side of the head immediately beneath the ear. The tail, too, is more bushy and shorter, the lateral hoofs are relatively smaller, and the horns, which are of medium length and stoutness, curve regularly upwards, and in some cases also forwards. The present species, the true reitbok of the Boers, is the largest of the genus, standing about 36 or 37 inches at the shoulder; and has the ear-patch completely bare, and the horns inclining markedly forwards. Length from nose to tail 37 inches in a specimen shot by Dr. Percy Rendall.

*Distribution*.—South Africa, extending as far north as Angola on the west, and to Mozambique on the east coast. Although formerly numerous in the eastern districts of Cape Colony and Natal, reedbuck have now become scarce in South Africa, and it is not till Khama's country is reached that they are met with in any numbers. As their name implies, reedbuck frequent the reed-brakes fringing so many African rivers; and some of the rivers where they are still fairly abundant are the Lotsani in Bamangwato and those of Ngamiland and the country between Mashonaland and the east coast. They are generally met with in small family parties; and when excited or alarmed utter a characteristic shrill whistle. As their flesh is of fair quality, and their shooting by no means difficult, they are much sought after by sportsmen.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
<sup>1</sup> —18	...	...	S. Africa . . . .	F. Vaughan Kirby.
—17½	6½	17½	Barotseland . . . .	Percy C. Reid.
—16¾	6¾	19½	Mpimbi, B.C.A. . . .	Major F. Trollope.
—16	5½	11½	S. Africa . . . .	A. Ohlsson.
15¾	6¼	10½	Do. . . . .	C. D. Rudd.
15¾	6¼	14¼	Do. . . . .	British Museum.
—15¾	6¾	10¾	Zululand . . . . .	F. R. N. Findlay.
<sup>2</sup> 15¾	6¾	13½	Transvaal . . . . .	Julius Jeppe.
15¾	6¾	...	South Africa . . . .	The late J. S. Jameson.
—15½	...	...	Nyoko Valley, B.C.A. . .	Major A. St. H. Gibbons.
—15½	6¾	15½	Transvaal . . . . .	F. Vaughan Kirby.

<sup>1</sup> This was seen and measured by Mr. Kirby. It had one horn only; the other was shot off.

<sup>2</sup> Abnormal head.

COMMON REEDBUCK (*Cervicapra arundinum*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-15½	...	16	?	Lord David Kennedy.
-15½	...	...	Damaraland . . .	Cape Town Museum.
-15¼	...	...	?	F. H. Barber.
15⅝	6⅝	11¼	Manica Plateau, N. of Zambesi	F. C. Selous.
15	6½	9¾	Mashonaland . . .	Sir John Willoughby, Bart.
15	6	12½	Barotseland . . .	H. Timmins.
-15	...	...	?	H. T. and A. H. Glynn.
-15	6½	9⅝	?	T. E. Buckley.
-15	...	...	?	O. R. Dunell.
14¾	6	15⅝	Zomba, B.C.A. . .	C. C. Bowring.
-14¾	6½	10½	Sabi Flats . . .	Dr. Percy Rendall.
14⅝	7⅝	9⅝	?	Hon. Walter Rothschild.
14½	6⅝	7⅝	?	Sir Edmund G. Loder, Bart.
14½	6¼	12⅝	Mashonaland . . .	A. Eyre.
14⅝	5½	16¾	S. Africa . . .	Lieut.-Col. Hon. W. Coke.
14¼	5½	11¼	British Central Africa . .	J. E. Gough.
-14¼	...	...	Transvaal . . .	C. T. Jones.
14	6½	11¼	Barotseland . . .	R. T. Coryndon.
13¾	5¾	11¼	S. Africa . . .	W. A. Edmonds.
13¾	6	10¾	Do. . . .	R. A. Cooper.
13¾	6	8¾	Pungwe . . .	H. R. Holden.
13⅝	6	12	Northern Rhodesia . .	F. Smitheman.
13½	6	9¼	?	Hon. Walter Rothschild.
13½	6¼	6	Pungwe . . .	Viscount Ennismore.
13½	6¼	6⅞	S. Africa . . .	Major-General Sir F. C. Carrington, K.C.B., K.C.M.G.
-13½	5¾	12½	Matabeleland . . .	J. Brander Dunbar.
13¼	7¼	11¼	Zululand . . .	A. Cameron.
13¼	6¼	9¼	S. Africa . . .	G. Richards.
-13	7	7½	Do. . . .	James J. Harrison.

COMMON REEDBUCK (*Cervicapra arundinum*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-13	6 $\frac{1}{2}$	10 $\frac{3}{4}$	?	Mr. Justice Hopley.
12 $\frac{7}{8}$	5 $\frac{8}{8}$	8	Zululand . . . .	Capt. L. O. Williams.
12 $\frac{3}{4}$	5 $\frac{3}{4}$	8 $\frac{1}{2}$	Busi Valley . . . .	E. S. Grogan.
-12 $\frac{3}{4}$	4 $\frac{3}{4}$	11	Nyasaland . . . .	Major P. W. Forbes.
12 $\frac{3}{4}$	6 $\frac{1}{8}$	8 $\frac{3}{8}$	Near Buby River . . . .	A. M. Sagar-Musgrave.
12 $\frac{3}{4}$	5 $\frac{1}{4}$	9 $\frac{1}{4}$	Zambesia . . . .	Comdr. A. T. Hunt.
12 $\frac{1}{2}$	6	6 $\frac{1}{2}$	S. Africa . . . .	F. E. Potter.
12 $\frac{1}{2}$	6	9 $\frac{3}{8}$	Pungwe . . . .	Capt. G. F. Henry.
12 $\frac{1}{2}$	5 $\frac{3}{4}$	13 $\frac{3}{4}$	Do. . . .	R. K. Micklethwait.
12	6 $\frac{3}{4}$	8 $\frac{3}{4}$	Do. . . .	Capt. F. H. Lehmann.
12	5 $\frac{1}{4}$	9 $\frac{3}{4}$	Do. . . .	Hon. T. Thynne.
12	6	7	Do. . . .	Col. G. A. Percy.
12	5 $\frac{5}{8}$	9 $\frac{1}{2}$	?	Julius Jeppe.
12	5 $\frac{1}{2}$	10 $\frac{3}{4}$	S. Africa . . . .	Montrose Cloete.
11 $\frac{3}{4}$	5 $\frac{3}{4}$	10 $\frac{1}{4}$	Benguela . . . .	G. W. Penrice.
11 $\frac{3}{4}$	5	9	Pungwe . . . .	C. C. Gouldsmith.
11 $\frac{1}{2}$	6	13	Do. . . .	Count E. Hoyos.
11 $\frac{1}{4}$	7	9 $\frac{1}{4}$	Do. . . .	P. B. Vander-Byl.
-11 $\frac{1}{4}$	6 $\frac{3}{4}$	9 $\frac{1}{8}$	?	Dr. W. P. Y. Bainbrigge.
11	6 $\frac{1}{4}$	11 $\frac{1}{4}$	Zululand . . . .	A. J. Brandon.
10 $\frac{7}{8}$	6	8 $\frac{1}{2}$	Pungwe . . . .	Lord Edward Manners.
10 $\frac{1}{2}$	5	6	Do. . . .	G. L. Bonham.
10 $\frac{1}{2}$	4 $\frac{5}{8}$	6	Do. . . .	G. Micklethwait.

**BOHOR REEDEBUCK** (*Cervicapra bohor*).*Boroufa* of the Gallas.*Porhé* of the Swahilis.

From the common reedbuck (*C. arundinum*) the present species is chiefly distinguished by its smaller size (height at shoulder about 31 inches), while it is considerably larger than either of the other three members of its genus. Young animals have the horns more hooked at their tips than is the case with the common reedbuck, but with advancing age even this point of distinction becomes little apparent, owing to the wearing away of the tips of the horns. Both the head and body are more uniformly fawn-coloured than in the common species.

Viscount Edmond de Poncins says:—"These antelopes are very numerous in the Galla country near Mount Yokoila; they like open grassy plains more or less dotted with the small mimosa bushes and are found in small herds of from four to eight, sometimes even fifteen or twenty. They are not very wild and may easily be stalked at less than 200 yards in the middle of the day. Old males frequently are found in the long grass quite alone, when if disturbed they gallop through the grass, jumping very high; on the plains they go easy and fast without jumping. The flesh is not bad eating, and the Gallas are very keen about getting the skins. Weight about 80 lbs."

A female shot by him measured from nose to root of tail  $51\frac{1}{4}$  inches; height at shoulder,  $31\frac{1}{2}$  inches; round the body, 30 inches.

A good male shot in the Galla country south of the Shoa, by the same sportsman, measured from nose to root of tail  $57\frac{1}{2}$  inches; tail,  $6\frac{1}{4}$  inches; height at shoulder,  $34\frac{1}{4}$  inches; round the body,  $34\frac{3}{4}$ .

*Distribution*.—From Abyssinia through East Africa as far south as Kilimanjaro. Discovered by Rüppell in Abyssinia.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
$13\frac{3}{4}$	$5\frac{1}{8}$	$8\frac{1}{8}$	East Africa . . .	British Museum.
$13\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	Do. . . .	Major J. R. Macdonald.
$12\frac{1}{2}$	$5\frac{5}{8}$	$5\frac{3}{8}$	Do. . . .	Sir John Kirk, K.C.B., British Museum.
$10\frac{5}{8}$	$4\frac{1}{2}$	$5\frac{1}{2}$	Do. . . .	Sir Robert Harvey, Bart.
$-9\frac{7}{8}$	$4\frac{7}{8}$	$3\frac{3}{4}$	Galla country . . .	Viscount Edmond de Poncins.
$-9\frac{1}{16}$	$5\frac{1}{2}$	$6\frac{1}{4}$	Do. . . .	Do.
$9\frac{1}{4}$	$4\frac{7}{8}$	$5\frac{1}{8}$	Usongola . . .	Col. F. D. Lugard, C.B., D.S.O.

BOHOR REEDBUCK (*Cervicapra bohor*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
9 $\frac{1}{8}$	5 $\frac{3}{8}$	8 $\frac{1}{2}$	Sudan . . . .	The late Dr. Burchell, British Museum.
9 $\frac{1}{8}$	4 $\frac{7}{8}$	4 $\frac{5}{8}$	Masailand . . . .	H. C. V. Hunter.
-9 $\frac{1}{10}$	5 $\frac{1}{8}$	5 $\frac{7}{8}$	Galla country . . . .	Prince de Lucinge.
9	5 $\frac{1}{4}$	3 $\frac{1}{8}$	Zanzibar . . . .	Sir John Kirk, K.C.B.
9	5	3 $\frac{3}{4}$	Ganda, Nigeria . . . .	J. W. Carroll.
-9	6	5	Shoa, Abyssina . . . .	Prince de Lucinge.
8 $\frac{3}{4}$	5	3 $\frac{7}{8}$	East Africa	Sir Robert Harvey, Bart.
8 $\frac{3}{4}$	4 $\frac{7}{8}$	3 $\frac{3}{4}$	Masailand . . . .	H. C. V. Hunter.
8 $\frac{1}{4}$	5 $\frac{3}{4}$	5	East Africa . . . .	R. P. Carroll.
8 $\frac{1}{4}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$	Do. . . . .	Sir Edmund G. Loder, Bart.
8 $\frac{1}{4}$	4 $\frac{3}{4}$	4 $\frac{3}{8}$	Unyoro . . . .	Col. Trevor Ternan.
8 $\frac{1}{8}$	4 $\frac{3}{4}$	2 $\frac{1}{2}$	Masailand . . . .	H. C. V. Hunter, British Museum.
7 $\frac{3}{4}$	4 $\frac{7}{8}$	2 $\frac{3}{4}$	East Africa . . . .	F. J. Jackson, C.B.
-7 $\frac{3}{4}$	5 $\frac{1}{8}$	6	Do. . . . .	Julius Jeppe.



Head of Mountain Reedbuck.

**MOUNTAIN REEDBUCK or ROOI RHEBOK (*Cervicapra fulvorufula*).**

*Inhlang-amatshe* of the Swazis and Zulus.

This and the nagor are the two smallest representatives of the reedbucks, both measuring about 28 inches at the shoulder. The present one is specially distinguished by the absence of a distinct forward hook to the tips of the horns, and the general grayish fawn colour of the fur, which has, however, in some cases a more or less distinctly rufous tinge.

*Distribution*.—Eastern Africa to the south of the Zambesi, particularly Natal, Zululand, and Bechuanaland ; represented farther north by the under-mentioned form. The rooi (red) rhebok differs from the typical representative of its genus in being an inhabitant of the basal slopes of mountains, at a lower level than the tract frequented by the vaal rhebok. They are generally found in small troops of a dozen head or less ; and from their active habits and the difficult nature of the ground they frequent, afford excellent stalking. Although rare in most of the Transvaal, good bags of this antelope have been made in the western districts of that country. In the neighbour-

hood of the tributaries of the Limpopo, on the Mabube, Tamulikan, Machabe, Sunta, and Chobe rivers, as well as the tributaries of the Zambesi east of the Victoria Falls, and throughout Mashonaland and Matabeleland, rooi rhebok are still very abundant. Those reported from the Manica plateau, north of the Zambesi, may be the so-called Chanler's reedbuck.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-8½	3½	4½	Transvaal . .	F. R. N. Findlay.
7½	4½	4½	S. Africa . .	Hon. Walter Rothschild. (Shot by F. C. Selous.)
-7½	4½	4	Transvaal . .	F. Vaughan Kirby.
-7½	4	3½	Lebombo Range, S.A.	Count E. Hoyos.
-7½	...	...	?	H. T. and A. H. Glynn.
7½	4½	3	Zululand . .	A. H. Neumann.
-7½	...	...	?	O. R. Dunell.
-7½	4½	2½	?	Mr. Justice Hopley.
-7½	4½	5½	?	Julius Jeppe.
7	3½	4½	Zululand . .	A. Cameron.
6½	4½	4½	?	Bloemfontein Museum.
6½	4½	4½	?	F. E. Potter.
-6½	3½	3½	?	Mr. Justice Hopley.
6½	4	3½	Zululand . .	Lieut.-Col. Hon. W. Coke.
-6½	3½	4½	Barberton . .	Dr. Percy Rendall.
-6½	4	3½	?	Dr. W. P. Y. Bainbrigge.
6½	4½	3½	Zululand . .	A. J. Brandon.
-6½	...	...	?	C. T. Jones.
-6½	4½	4	?	A. Ohlsson.
-6	3½	2½	Swaziland . .	T. E. Buckley.
6	4	3½	Zululand . .	Captain L. O. Williams.

#### LYDENBURG REEDBUCK (*Cervicapra fulvorufula subalpina*).

The reedbuck discovered by Mr. Vaughan Kirby in the Lydenburg range of the Transvaal departs from the ordinary type of the mountain reedbuck in exhibiting a tendency to partial albinism. Whether this peculiarity entitles it to be regarded as a distinct race must, for the present, remain a moot point.



Head of Chanler's Reedbuck. From a specimen shot by W. Astor Chanler.

**CHANLER'S REEDBUCK** (*Cervicapra fulvorufula chanleri*).

A reedbuck from East Africa described by the Hon. Walter Rothschild from a single skin, as a distinct species, appears to be nothing more than a local race of the rooi rhebok, from which it is even doubtful whether it should be separated as a sub-species. In the type specimen the nose shows a dark streak like the one often seen in the rooi rhebok and common reedbuck. Other skins have been obtained by Mr. F. J. Jackson, C.B.

*Distribution.*—The mountainous districts of British East Africa to the east of Mount Kenia and adjacent regions. By Mr. H. S. H. Cavendish these antelopes were seen in the Boran country.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
5 $\frac{5}{8}$	4	4	?	Lord Delamere.
5 $\frac{5}{8}$	3 $\frac{1}{2}$	4 $\frac{3}{8}$	?	Major A. E. Smith.
5 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{7}{8}$	Zombènè Range.	W. Astor Chanler.

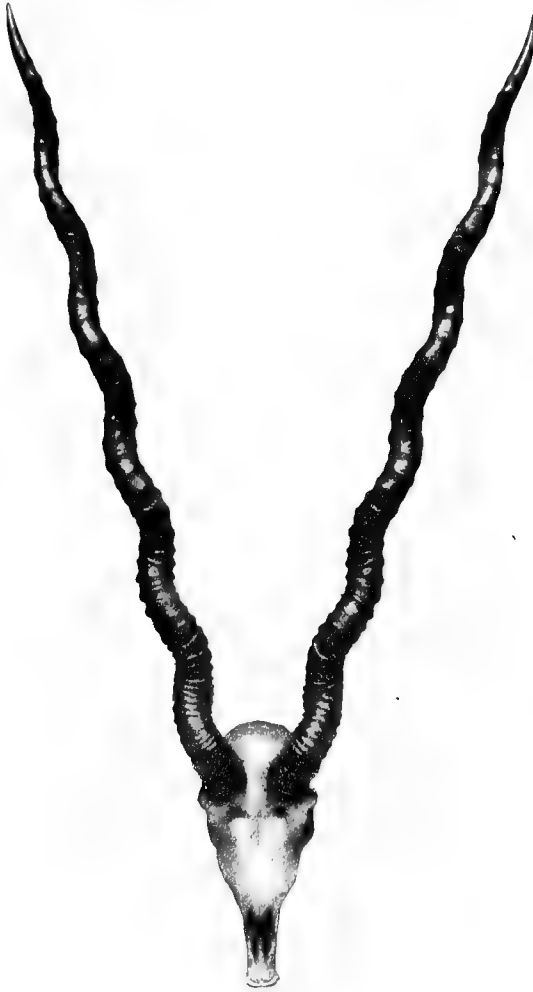


**NAGOR REEDBUCK** (*Cervicapra redunca*).

Distinguished from the mountain reedbuck (with which it agrees approximately in size) by the distinct forward curvature of the tips of the horns, so as to form a hook. General colour uniformly bright fawn, without darker markings on the limbs; tail only slightly bushy, fawn-coloured above and white beneath.

*Distribution*.—Senegal and Gambia.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
9½	5	3½	Ganda, Nigeria	J. W. Carroll.
8	5¼	3½	Ibi, Benue River, West Africa	Julius Jeppe.
8	6	7¾	West Africa	Hon. Walter Rothschild.
8	5	5¾	Gambia	Guy H. Sangster.
7½	5½	2	?	Sir Edmund G. Loder, Bart.
6¾	4¾	2½	Ibi	Capt. A. H. Festing.



Skull and Horns of Blackbuck. From Mr. A. O. Hume's specimen.

**BLACKBUCK or INDIAN ANTELOPE (*Antilope bezoartica*).**

Although in former days almost or quite all of the then known species of antelope was included in the genus *Antilope*, the extent of the latter has been gradually whittled down until it comprises the Indian blackbuck alone. In addition to being the sole representative of the genus, this animal is also the type of a sub-family or group of antelopes, embracing among others the saiga, the gazelles, the impala,

and springbuck. All these are small or medium-sized antelopes, with hairy muzzles, generally short tails, and tall, narrow-crowned cheek-teeth, like those of sheep. With the exception of the springbuck and the majority of the gazelles, horns are confined to the males. From all the other members of this assemblage the blackbuck is distinguished by the beautiful spiral formed by its horns. It has large face-glands, a short and compressed tail, and well-developed lateral hoofs. Height at shoulder about 32 inches; average weight, 85 lbs. It is only in adult males that the characteristic dark tint from which the species takes its name is developed; young males being uniformly brownish fawn above like the does.

*Distribution.*—India, from the foot of the Himalaya to Cape Comorin, and from the Punjab to Lower Assam; unknown in Ceylon and the countries to the eastward of the Bay of Bengal.

Length straight.	Circumference.	Tip to Tip.	Locality.	Owner.
1-28 $\frac{3}{4}$	...	...	Jeypore . . .	Major-Gen. Sir B. Blood, K.C.B.
28 $\frac{1}{4}$	5	17 $\frac{3}{4}$	Near Delhi . . .	A. O. Hume, C.B. (See illustration.)
-28	...	20	Do. . . .	Major P. Dunell Pank.
-28	5	15	38 miles north of Ahmedabad	T. Le Mesurier.
-27 $\frac{7}{8}$	...	...	Jeypore . . .	Major-Gen. Sir B. Blood, K.C.B.
-27	5	19 $\frac{1}{2}$	Bikanir . . .	Capt. Harry V. Brooke,
26 $\frac{3}{4}$	4 $\frac{3}{4}$	25 $\frac{1}{4}$	Bhurtpore, N.W.P.	Col. E. T. H. Hutton.
-26 $\frac{3}{4}$	5	19 $\frac{1}{2}$	Bikanir . . .	Capt. Harry V. Brooke.
-26 $\frac{3}{4}$	4 $\frac{3}{4}$	...	Do. . . .	Major-Gen. Alexander A. A. Kinloch.
-26 $\frac{1}{2}$	...	...	N.W.P. . . .	C. B. Oldfield.
26 $\frac{3}{8}$	5	17 $\frac{7}{8}$	Sirsa, Punjab . . .	A. O. Hume, C.B.
-26 $\frac{5}{10}$	5 $\frac{1}{4}$	22	Bikanir . . .	Lieut.-Col. G. D. F. Sullivan.
26 $\frac{1}{4}$	5	23 $\frac{1}{8}$	Oudh . . . .	E. St. J. Lawson.
26	5	21 $\frac{7}{8}$	Bikanir . . . .	Capt. H. W. Codrington.
-26	...	...	Jeypore . . . .	Capt. G. L. Holdsworth.
25 $\frac{1}{2}$	...	15	?	Col. Martin.
25 $\frac{1}{2}$	4 $\frac{7}{8}$	18	Punjab . . . .	Major R. H. Rattray.
25 $\frac{3}{8}$	5 $\frac{1}{2}$	14 $\frac{1}{2}$	Sirsa, Punjab . . .	Hume Collection, British Museum.

1 Measured and recorded by A. O. Hume, but not now in the possession of General Sir B. Blood, K.C.B.

**BLACKBUCK or INDIAN ANTELOPE (*Antelope bezoartica*)—continued.**

Length straight.	Circumference.	Tip to Tip.	Locality.	Owner.
-25 $\frac{3}{8}$	5	19	?	Count E. Hoyos.
25 $\frac{1}{4}$	4 $\frac{3}{4}$	19	Jeypore . .	A. B. Graves.
25 $\frac{1}{8}$	5 $\frac{1}{8}$	15	Kathiawar . .	Lieut.-Col. L. L. Fenton.
25	4 $\frac{7}{8}$	19	Sirsa, Punjab . .	Hume Collection, British Museum.
-25	5 $\frac{1}{4}$	13 $\frac{1}{2}$	?	Bombay Natural History Society's Museum.
-25	...	...	?	Lucknow Museum.
24 $\frac{3}{4}$	5	20	Jeypore . . .	Surgeon-Major J. B. Buchanan.
24 $\frac{3}{4}$	4 $\frac{1}{2}$	17 $\frac{1}{4}$	Dholpur . . .	A. J. Coppinger.
24 $\frac{1}{2}$	5 $\frac{3}{8}$	20 $\frac{1}{4}$	Bikanir . . .	H.H. Maharaja of Bikanir.
24 $\frac{3}{8}$	4 $\frac{7}{8}$	18 $\frac{1}{4}$	Do. . .	Lieut.-Col. G. D. F. Sulivan.
24 $\frac{1}{4}$	4 $\frac{3}{4}$	19 $\frac{1}{2}$	?	A. Leslie Renton.
24 $\frac{1}{4}$	5	18 $\frac{1}{2}$	?	Marquis of Ailsa.
-24 $\frac{1}{4}$	4.33	20.85	Udepur . . .	Viscount Edmond de Poncins.
-24 $\frac{1}{4}$	5	19 $\frac{1}{4}$	Punjab . .	Capt. A. Hicks-Beach.
24	5	18 $\frac{7}{8}$	Aligahr . .	St. George Littledale.
24	4 $\frac{5}{8}$	16 $\frac{3}{4}$	Rajpura . .	The late J. E. Ubsdell.
-24	4 $\frac{7}{8}$	...	Punjab . . .	J. Johnston-Stewart.
24	...	20	?	Duke of Bedford.
-24	...	...	?	Otho Shaw.
23 $\frac{3}{4}$	5 $\frac{3}{8}$	21	?	H.R.H. the Duke of Saxe-Coburg and Gotha.
23 $\frac{3}{4}$	4 $\frac{3}{4}$	13 $\frac{1}{4}$	?	Capt. F. C. Quicke.
-23 $\frac{3}{4}$	...	...	Central Provinces .	Capt. H. M. Biddulph.
23 $\frac{3}{4}$	5	16 $\frac{1}{4}$	Punjab . .	Major J. W. M. Cotton.
23 $\frac{5}{8}$	4 $\frac{7}{8}$	19 $\frac{1}{4}$	Patiala . .	Lieut.-Col. E. E. Carr.
23 $\frac{5}{8}$	5 $\frac{1}{8}$	14 $\frac{3}{8}$	?	Hon. Walter Rothschild.
23 $\frac{5}{8}$	4 $\frac{3}{4}$	16 $\frac{3}{8}$	Central Provinces .	C. D. Twopeny.
<sup>1</sup> 23 $\frac{1}{2}$	3 $\frac{1}{4}$	20 $\frac{1}{4}$	?	A. O. Hume, C.B.
23 $\frac{1}{2}$	5 $\frac{1}{8}$	16 $\frac{3}{4}$	Bikanir . . .	Capt. F. E. S. Adair.
23 $\frac{1}{2}$	4 $\frac{1}{2}$	17 $\frac{1}{4}$	Do. . .	Major H. C. Morland.

<sup>1</sup> Malformed, curving backwards like an ibex.

**BLACKBUCK or INDIAN ANTELOPE** (*Antelope bezoartica*)—*continued*.

Length straight.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-23 $\frac{1}{2}$	5	17 $\frac{1}{2}$	?	James J. Harrison.
23 $\frac{1}{2}$	5	24 $\frac{1}{2}$	Bikanir . . .	U. O. Thynne.
-23 $\frac{1}{2}$	5 $\frac{1}{2}$	18	Gaziabad . . .	Major G. Douglas.
23 $\frac{1}{4}$	5 $\frac{1}{2}$	18 $\frac{1}{2}$	Do. . . .	Hume Collection, British Museum.
23 $\frac{1}{4}$	4 $\frac{3}{4}$	17 $\frac{3}{4}$	Sirhind . . .	Col. R. J. Heber-Percy.
23	5 $\frac{1}{4}$	13 $\frac{3}{8}$	North India . . .	Sir Victor Brooke's Collection.
23	5 $\frac{1}{4}$	15 $\frac{1}{4}$	Indore . . .	Col. Cunliffe Martin.
23	5 $\frac{1}{4}$	15 $\frac{1}{2}$	?	H. G. Buxton.



Head of Blackbuck.



Skull and Horns of Impala, from a specimen shot by A. H. Neumann.

**IMPALA (*Æpyceros melampus*).**

*Inzero* of the Masubias.  
*Swalah* of the Swahilis.

*Mpala* in the Barotse, Lake Ngami,  
and the Chilala and Chibisa.

This beautiful impala, or pala, differs from all the members of the gazelle group by the absence of the lateral hoofs; its specific name (black-footed) being taken from the pair of tufts of black hair on each hind foot. The horns of the bucks, which are of considerable length in proportion to the size of the animal, show a characteristic and graceful double curvature; and the bright foxy red hue of the shining fur of the upper parts aids in the easy identification of the species. Height at shoulder about 33 inches. The Boer name of rooibok (red buck) is happily chosen. Weight about 110 lbs.

*Distribution*.—Southern and South-Eastern Africa, extending as far north as Lower Kordofan. In Angola replaced by a closely allied form (*Æ. petersi*), usually regarded as a distinct species, but which may be merely a local race; it is distinguished by the presence of a purplish black streak down the middle of the face and another

through each eye. In the days of their abundance impala were to be found in big troops; and such are still to be met with on the Upper Zambesi, in East Mashonaland, and parts of British East and Central Africa. Half a century ago, or even less, they were to be found in similar numbers among the covert on the banks of every river in the Transvaal and Bechuanaland; but now it is not till the northern borders of the former country that they are to be met with, and even then only in small parties here and there. Impala are some of the fleetest of all antelopes, and are also in the habit of leaping high in the air; their presence always implies the neighbourhood of water.

On front curve.	Length.		Tip to Tip.	Locality.	Owner.
	Straight.	Circumference.			
30	24	6 $\frac{1}{2}$	17 $\frac{1}{2}$	E. C. Africa . .	Lord Delamere.
29	22 $\frac{1}{2}$	5 $\frac{5}{8}$	11	Do. . .	Do.
28	23	5 $\frac{3}{4}$	22 $\frac{3}{4}$	Do. . .	A. H. Neumann. (See illustration.)
...	22 $\frac{7}{8}$	...	...	Masailand . .	F. J. Jackson, C.B.
28	21	5 $\frac{7}{8}$	12 $\frac{1}{4}$	E. Africa . .	G. E. Smith.
27 $\frac{1}{2}$	21	5 $\frac{7}{8}$	14 $\frac{1}{2}$	South Africa . .	The late Dr. Burchell, British Museum.
27	23	6	23 $\frac{1}{2}$	Between Lakes Baringo and Rudolph	H. Andrew.
27	22 $\frac{1}{2}$	...	15 $\frac{1}{8}$	Between Lakes Naivasha and Baringo	F. J. Jackson, C.B.
27	22 $\frac{1}{4}$	6	10 $\frac{3}{4}$	E. Africa . .	Major A. E. Smith.
-27	21 $\frac{1}{2}$	6	9	Do. . .	E. Gedge.
-26 $\frac{1}{2}$	20 $\frac{3}{4}$	...	...	South Africa . .	Grahamstown Museum.
26 $\frac{3}{8}$	21	5 $\frac{5}{8}$	16	Do. . .	Hon. Walter Rothschild.
26 $\frac{1}{4}$	22 $\frac{3}{4}$	5 $\frac{3}{4}$	15	Uganda . . .	Col. F. D. Lugard, C.B., D.S.O.
26 $\frac{1}{4}$	19 $\frac{3}{4}$	5 $\frac{3}{4}$	22 $\frac{1}{4}$	E. Africa . .	C. W. Hobley.
25 $\frac{1}{2}$	21 $\frac{1}{4}$	6 $\frac{1}{4}$	12 $\frac{7}{8}$	Do. . .	G. E. Smith.
...	20 $\frac{1}{2}$	5 $\frac{3}{4}$	15	Do. . .	W. Astor Chanler.
...	20 $\frac{1}{2}$	5 $\frac{5}{8}$	11 $\frac{1}{2}$	Do. . .	H. C. V. Hunter.
-25 $\frac{1}{2}$	20	6	14	Matamiri Bush .	F. Vaughan Kirby.
25 $\frac{1}{2}$	20	6	13 $\frac{3}{4}$	E. Africa . .	Henry Charrington.
25 $\frac{1}{4}$	20 $\frac{1}{2}$	5	12 $\frac{5}{8}$	Do. . .	F. J. Jackson, C.B.
-25.13	20	5.12	15.7	Do. . .	Prince Henry of Liechtenstein.

IMPALA (*Æpyceros melampus*)—*continued*.

Length. On front curve.	Straight.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-25 $\frac{1}{8}$	20 $\frac{1}{4}$	...	10 $\frac{3}{4}$	?	F. J. Newnham.
25	21 $\frac{1}{8}$	5 $\frac{7}{8}$	17 $\frac{5}{8}$	East Africa .	F. J. Jackson, C.B.
24 $\frac{7}{8}$	19 $\frac{3}{4}$	5 $\frac{7}{8}$	11 $\frac{5}{8}$	Do.	Sir Edmund G. Loder, Bart.
24 $\frac{1}{2}$	19 $\frac{1}{8}$	5 $\frac{5}{8}$	12 $\frac{3}{8}$	S. Africa . .	British Museum.
..	20	...	...	Chobe Valley .	F. C. Selous.
...	20	...	...	E. Africa . .	Sir John Willoughby, Bart.
24	20	5 $\frac{1}{2}$	16	Do. .	J. Gardiner Muir.
24	20	6	11 $\frac{3}{4}$	Do. .	E. J. L. Berkeley.
-24	20 $\frac{1}{2}$	5 $\frac{1}{2}$	13 $\frac{1}{2}$	S. Africa	Dublin Museum.
-24	19	5 $\frac{1}{2}$	10	Do.	Mr. Justice Hopley.
-24	...	6 $\frac{1}{2}$	16 $\frac{1}{4}$	E. Africa .	T. E. Buckley.
23 $\frac{5}{8}$	19 $\frac{1}{4}$	5 $\frac{3}{8}$	16 $\frac{3}{8}$	Do.	Capt. R. A. J. Montgomerie, C.B., R.N.
23 $\frac{5}{8}$	...	5 $\frac{1}{2}$	9 $\frac{3}{8}$	Do. .	Hon. Walter Rothschild.
-23 $\frac{1}{2}$	19	...	12 $\frac{5}{8}$	Lydenburg . .	F. H. Barber.
23 $\frac{1}{2}$	19	5	8	E. Africa .	C. F. S. Vandeleur, D.S.O.
23 $\frac{3}{8}$	20 $\frac{3}{8}$	6	14 $\frac{1}{2}$	Do. .	Sir Robert Harvey, Bart.
23 $\frac{1}{8}$	19 $\frac{3}{8}$	5 $\frac{3}{8}$	12 $\frac{3}{4}$	Ndi, E. Africa	C. Steuart Betton.
-23	18 $\frac{1}{4}$	5	10	S. Africa . .	A. Ohlsson.
22 $\frac{3}{4}$	18 $\frac{3}{4}$	6	14 $\frac{3}{4}$	E. Africa . .	Major W. H. Williams.
22 $\frac{1}{2}$	18 $\frac{1}{2}$	5 $\frac{1}{2}$	14 $\frac{3}{8}$	Matabeleland . .	Hon. R. A. Ward.
-22 $\frac{1}{2}$	18	...	...	?	O. R. Dunell.
-22	19	...	...	S. Africa . .	Cape Town Museum.
-...	19	...	...	Njoko River .	R. T. Coryndon.
22	18	6	10 $\frac{1}{2}$	S. Africa . .	James J. Harrison.
21 $\frac{3}{4}$	18	5	9 $\frac{1}{4}$	Pungwe . . .	Hon. T. Thynne.
21 $\frac{1}{2}$	17 $\frac{1}{4}$	5 $\frac{1}{2}$	12 $\frac{3}{4}$	S.E. Africa . .	E. Lort-Phillips.
21 $\frac{1}{4}$	18 $\frac{3}{4}$	5 $\frac{1}{4}$	10	Do. . . .	Col. G. A. Percy.
21 $\frac{1}{4}$	17 $\frac{1}{2}$	5 $\frac{1}{4}$	11 $\frac{1}{4}$	Do. . . .	G. L. Bonham.
21 $\frac{1}{4}$	17	5	8 $\frac{1}{4}$	Do. . . .	Viscount Ennismore.



The following specimens belong to the small form described as *E. johnstoni*, now regarded as inseparable from the ordinary impala :—

Length.		Circum- ference.	Tip to Tip.	Locality.	Owner.
On front curve.	Straight.				
19 $\frac{3}{8}$	15 $\frac{3}{4}$	4 $\frac{7}{8}$	5 $\frac{5}{8}$	Choma River, B.C.A.	R. H. Ferrers Stranach.
19	14 $\frac{3}{4}$	5 $\frac{1}{4}$	7	B.C.A. . . .	John Yule.
17 $\frac{1}{2}$	14 $\frac{3}{4}$	4 $\frac{3}{4}$	9 $\frac{3}{4}$	Do. . . .	C. C. Bowring.
17	14 $\frac{1}{2}$	5 $\frac{1}{4}$	8	Do. . . .	Hon. Walter Rothschild.

#### ANGOLAN IMPALA (*Æpyceros petersi*).

See page 206.

23 $\frac{1}{4}$	18 $\frac{3}{4}$	6	12 $\frac{1}{4}$	Kaokoland . . .	Capt. F. Cookson.
21	17 $\frac{7}{8}$	5 $\frac{7}{8}$	11 $\frac{3}{4}$	Angola . . . .	Hon. Walter Rothschild.
-21	17 $\frac{7}{8}$	6	9 $\frac{3}{4}$	?	Count E. Hoyos.



Head of Impala.



Horns of Saiga, from the Hon. Walter Rothschild's specimen.

### SAIGA (*Saiga tatarica*).

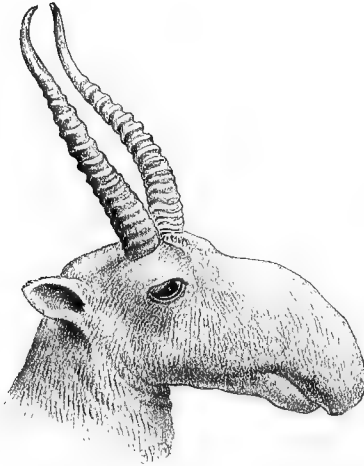
One of the most remarkable of all antelopes is the Central Asian saiga, which, although belonging to the same group as the blackbuck, differs from most of its kindred by the extraordinary inflated and puffy shape of the nose. This forms a kind of trunk, comparable to that of the dik-diks, with the nostrils directed downwards. The tail is short, and lateral hoofs, which are wanting in the impala, are present. In summer the colour is dull yellowish above and whitish beneath, but in winter the whole fur is uniformly whitish. The short and blunt ears are very thickly covered with hair, and the horns of the males pale amber colour. Height at shoulder about 30 inches.

*Distribution*.—The open steppes of Southern Russia and South-Eastern Siberia. Formerly the range of this animal was much more extensive in Europe, reaching to the confines of Poland, but nowadays it is restricted to the Kalmuk Steppes between the rivers Don and Volga.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
14 $\frac{3}{8}$	5 $\frac{1}{4}$	3 $\frac{1}{2}$	Siberia . . . . .	Hon. Walter Rothschild. (See illustration.)
13 $\frac{3}{4}$	5	...	Volga . . . . .	Sir Edmund G. Loder, Bart.
13 $\frac{3}{4}$	4 $\frac{3}{8}$	3 $\frac{1}{2}$	?	Sir Victor Brooke's Collection.
13 $\frac{5}{8}$	5	5 $\frac{1}{2}$	Sarepta, South Russia . . .	British Museum.
13 $\frac{1}{8}$	5 $\frac{3}{8}$	4 $\frac{3}{8}$	Russia . . . . .	Hon. Walter Rothschild.

**SAIGA** (*Saiga tatarica*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$12\frac{7}{8}$	$5\frac{3}{8}$	single horn	Russia . . . . .	British Museum.
$12\frac{7}{8}$	$4\frac{5}{8}$	$5\frac{5}{8}$	Sarepta, South Russia . . . .	Do.
$-12\frac{1}{2}$	5	$4\frac{1}{4}$	Siberia . . . . .	Dublin Museum.
11	$4\frac{7}{8}$	$4\frac{1}{2}$	Do. . . . .	British Museum.



Head of Male Saiga.



Head of Chiru, from H. Z. Darrah's specimen.

**CHIRU or TIBETAN ANTELOPE (*Pantholops hodgsoni*).**

Among several animals peculiar to the Tibetan plateau none is more interesting than the so-called chiru, whose beautiful horns form some of the most cherished trophies of the sportsman. Although very unlike in general appearance, the chiru is evidently a near ally of the saiga, having the nose even more swollen at the sides, at least in the male, but less bent downwards at the tip. The long black horns, which are somewhat compressed, rise almost vertically from the head, and are slightly divergent, nearly straight below, but evenly curving forwards above, and ridged in front. General colour of fur, which is very dense and short, pale fawn above, with a pinkish suffusion, but the face of the male black. Height at shoulder about 31 or 32 inches; weight from 90 to 120 lbs.

*Distribution.*—The plateau of Tibet, at elevations of from 13,000 to

16,000 feet, or even more ; the animal associates in pairs or small parties.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
27 $\frac{3}{4}$	6 $\frac{1}{8}$	13 $\frac{1}{2}$	From the Darma Side across the Beansi Pass	A. O. Hume, C.B.
27 $\frac{5}{8}$	5 $\frac{1}{2}$	11 $\frac{1}{4}$	Tibet . . . .	Sir Robert Harvey, Bart.
27 $\frac{1}{8}$	5 $\frac{7}{8}$	15 $\frac{1}{8}$	Hills N. of the Beansi Pass	A. O. Hume, C.B.
-27	...	12	?	J. D. Inverarity.
-26 $\frac{1}{2}$	...	...	Chang Chenmo . .	Major A. E. Ward.
26 $\frac{3}{8}$	5 $\frac{7}{8}$	13 $\frac{3}{8}$	Ladak . .	Hon. Charles Ellis.
26	4 $\frac{7}{8}$	12 $\frac{7}{8}$	Tibet . .	Captain G. Campbell.
25 $\frac{5}{8}$	5 $\frac{1}{2}$	12 $\frac{3}{4}$	?	Arnold Pike.
25 $\frac{1}{2}$	5 $\frac{3}{4}$	11 $\frac{1}{2}$	Tibet . . . .	Captain C. B. Vandeleur.
25 $\frac{3}{8}$	5 $\frac{1}{8}$	12 $\frac{1}{2}$	Hills north of Leh .	Hume Collection, British Museum.
25 $\frac{1}{4}$	5 $\frac{3}{4}$	12 $\frac{3}{4}$	Hills north of Kumaon	Do.
25	5 $\frac{3}{4}$	11 $\frac{1}{2}$	Chang Chenmo . .	H. Z. Darrah. (See illustration.)
-25 $\frac{1}{4}$	5	10 $\frac{3}{4}$	Tibet . .	P. H. G. Powell Cotton.
24 $\frac{3}{4}$	5 $\frac{5}{8}$	11 $\frac{1}{2}$	?	Sir Edmund G. Loder, Bart.
24 $\frac{3}{4}$	5	11	?	E. L. Phelps.
24 $\frac{5}{8}$	5 $\frac{5}{8}$	11 $\frac{3}{4}$	Tibet . .	Sir Robert Harvey, Bart.
-24 $\frac{1}{2}$	4 $\frac{3}{4}$	...	Do. . . .	Major-General Alexander A. A. Kinloch.
24 $\frac{3}{8}$	5 $\frac{1}{4}$	16 $\frac{1}{2}$	?	British Museum.
-24	...	...	Changchingris . .	Otho Shaw.
-24	5 $\frac{1}{2}$	12	?	T. E. Buckley.
-24	...	...	Chang Chenmo . .	Captain H. Trevor.
-24	...	...	?	Indian Museum.
-24	...	...	?	H.H. the Maharaja of Travancore, G.C.S.I.
-24	5 $\frac{1}{4}$	12 $\frac{1}{2}$	Tibet . . . .	Captain C. B. Vandeleur.
-23 $\frac{3}{8}$	5 $\frac{1}{4}$	11 $\frac{5}{8}$	Do. . . .	H. C. V. Hunter.
-23 $\frac{5}{8}$	5 $\frac{1}{8}$	13 $\frac{7}{8}$	Chang Chenmo . .	Paris Museum.
-23 $\frac{1}{2}$	5 $\frac{1}{2}$	8 $\frac{1}{4}$	Do. . .	P. Church.
23 $\frac{1}{2}$	5	15 $\frac{1}{4}$	Do. . .	Major H. C. Morland.
23 $\frac{1}{2}$	5	14 $\frac{3}{4}$	Do. . .	Reginald Beech.
23 $\frac{1}{2}$	5 $\frac{1}{4}$	12 $\frac{7}{8}$	Do. . .	Captain H. Trevor.
23 $\frac{3}{8}$	5 $\frac{1}{4}$	11 $\frac{3}{8}$	Ladak . .	Major C. S. Cumberland.
23 $\frac{1}{4}$	5 $\frac{3}{8}$	14 $\frac{5}{8}$	Do. . .	Hon. Walter Rothschild.
23 $\frac{1}{4}$	5 $\frac{3}{8}$	13 $\frac{3}{8}$	Do. . .	Captain H. M. Biddulph.
23 $\frac{1}{4}$	...	11 $\frac{1}{4}$	Do. . .	Colonel R. J. Heber-Percy.
23 $\frac{1}{4}$	5	8 $\frac{1}{4}$	Do. . .	G. B. Milne.
23 $\frac{1}{8}$	5 $\frac{1}{2}$	...	Do. . .	Dr. W. P. Y. Bainbrigge.
23	4 $\frac{7}{8}$	11 $\frac{3}{4}$	Do. . .	Captain H. Trevor.
23	5	15	Do. . .	H. R. H. le Duc d'Orléans.



Head of Springbuck, from F. H. Barber's specimen.

**SPRINGBUCK** (*Antidorcas euchore*).

Although nearly allied to the gazelles, both in bodily form, coloration, and the shape of the horns, the springbuck presents a peculiarity entitling it to be regarded as the representative of a genus by itself. This peculiarity is the presence of a fold, or narrow pouch, running down the middle of the hinder part of the back, and lined with long pure white hairs. In periods of excitement this pouch is capable of being turned partially inside out, when the long white hairs are erected, and give a totally different appearance to this region of the animal. Owing to the dark nose-streak stopping short at the level of the eyes, the springbuck has more white on the face than is the case with the majority of gazelles; and the white on the rump, which includes the tail and joins that of the middle of the back, also occupies a larger area. Height at shoulder, 30 inches.

*Distribution.*—The plains of Southern Africa, extending in the central districts of the continent to about latitude  $20^{\circ}$  S., where its limits are defined by the forests to the south of the Mabebe River; in the west ranging as far north as Mossamedes and Benguela in Southern Angola, and in the east at least up to the Limpopo. Although now never found in the countless thousands which formerly swarmed over the plains of the Transvaal and Bechuanaland, springbuck are still

abundant in many districts. Protected to a certain degree by law, they are to be met with in parts of Cape Colony and the Orange Free State; while on the plains bordering the Botletli and the neighbouring salt-pans, as well as in Great Namaqualand, Damara-land, and the Ovampo Flats, they occur in large numbers. Spring-buck-stalking on the open veldt affords excellent rifle practice; zest being added to the sport from the fact that the venison is most excellent for the table.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
<sup>1</sup> 19	5	20 $\frac{1}{4}$	Kalahari .	The late W. F. Webb.
-17	...	...	Middleburg Flats .	F. H. Barber. (See illustration.)
-16 $\frac{1}{2}$	...	...	Bechuanaland .	Vryburg Club.
15 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{4}$	?	Hon. T. Thynne.
-15 $\frac{1}{2}$	6 $\frac{1}{2}$	...	?	Dr. Maloney.
15 $\frac{1}{2}$	6 $\frac{1}{8}$	3 $\frac{1}{2}$	Cape Colony . . .	C. D. Rudd.
-15 $\frac{1}{2}$	6	2 $\frac{3}{4}$	S. of Great Namaqualand	Th. Rehbock.
-15 $\frac{1}{4}$	5 $\frac{1}{2}$	4 $\frac{1}{8}$	?	Dr. W. P. Y. Bainbrigge.
15 $\frac{1}{8}$	6 $\frac{1}{4}$	5 $\frac{7}{8}$	Ovampo Flats . .	Capt. F. Cookson.
15 $\frac{1}{8}$	5 $\frac{3}{4}$	10 $\frac{7}{8}$	?	The late W. C. Oswell.
15	5 $\frac{1}{2}$	8 $\frac{1}{4}$	?	Capt. E. J. Lugard.
-15	6	6 $\frac{1}{4}$	?	A. Ohlsson.
-15	...	...	Langberg, Kimberley .	Cape Town Museum.
-14 $\frac{1}{2}$	...	...	?	Alfred Ebdon.
14 $\frac{1}{4}$	7	2 $\frac{1}{2}$	South Africa .	A. W. Davis.
14 $\frac{1}{4}$	6 $\frac{1}{4}$	5	Do. . .	C. Ansell.
14	5 $\frac{3}{4}$	4 $\frac{1}{4}$	?	British Museum.
14	5 $\frac{1}{2}$	5	?	F. E. Potter.
13 $\frac{7}{8}$	6	5 $\frac{3}{8}$	Griqualand . .	F. C. Selous.
13 $\frac{5}{8}$	5 $\frac{1}{4}$	5 $\frac{5}{8}$	Benguela . .	G. W. Penrice.
13 $\frac{5}{8}$	5 $\frac{1}{2}$	7 $\frac{1}{8}$	?	Sir Victor Brooke's Collection.
13 $\frac{1}{2}$	5 $\frac{1}{2}$	5	Botletli River, Ngamiland	H. A. Bryden.
13 $\frac{1}{2}$	5 $\frac{3}{8}$	3 $\frac{3}{4}$	?	Sir Edmund G. Loder, Bart.

<sup>1</sup> A malformed specimen.

SPRINGBUCK (*Antidorcas euchore*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-13 $\frac{1}{2}$	...	...	?	O. R. Dunell.
13 $\frac{3}{8}$	5 $\frac{7}{8}$	4 $\frac{3}{8}$	South Africa	F. C. Selous.
13 $\frac{1}{4}$	8 $\frac{1}{4}$	4 $\frac{1}{2}$	Do.	R. A. Cooper.
13 $\frac{1}{4}$	6	4	Do.	Hon. John Ward.
♀ 13	...	...	Middleburg Flats	F. H. Barber.
- ♀ 13	...	...	South Africa	Alfred Ebdon.
13	5 $\frac{1}{4}$	6	Britstown, South Africa	W. S. Curtis.
12 $\frac{3}{4}$	5 $\frac{1}{4}$	3 $\frac{1}{4}$	Cape Colony	Rowland Ward.
12 $\frac{5}{8}$	5 $\frac{5}{8}$	7 $\frac{1}{8}$	Orange Free State	Julius Jeppe.
-12 $\frac{1}{2}$	5	4	Do.	Do.
12 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{1}{2}$	South Africa	P. H. Illingworth.
-12 $\frac{3}{8}$	4 $\frac{11}{16}$	7 $\frac{11}{16}$	Transvaal	Dr. Percy Rendall.
-12 $\frac{3}{8}$	5 $\frac{1}{2}$	4 $\frac{3}{8}$	Orange Free State	Count E. Hoyos.
♀ 12 $\frac{1}{8}$	2 $\frac{7}{8}$	...	S. of Great Namaqualand	Th. Rehbock.
- ♀ 12	...	...	Damaraland	F. H. Barber.
-12	...	...	?	C. T. Jones.
- ♀ 11 $\frac{1}{4}$	3	3	?	Dr. W. P. Y. Bainbrigge.
♀ 10 $\frac{3}{4}$	3 $\frac{1}{4}$	5 $\frac{3}{4}$	South Africa	F. C. Selous.
♀ 10 $\frac{1}{8}$	3 $\frac{3}{8}$	2 $\frac{1}{2}$	Ovampoland	Capt. F. Cookson.
♀ 9 $\frac{1}{4}$	3 $\frac{3}{8}$	4 $\frac{1}{4}$	Benguela	G. W. Penrice.
8 $\frac{5}{8}$	2 $\frac{1}{2}$	4	Natal	British Museum.
- ♀ 8 $\frac{1}{8}$	2 $\frac{1}{16}$	3 $\frac{1}{16}$	Transvaal	Dr. Percy Rendall.
♀ 8	3 $\frac{1}{8}$	2 $\frac{1}{2}$	South Africa	A. Beit.
♀ 7 $\frac{1}{2}$	2 $\frac{3}{8}$	2 $\frac{7}{8}$	Do.	F. C. Selous.





**GOA or TIBETAN GAZELLE** (*Gazella pecticaudata*).

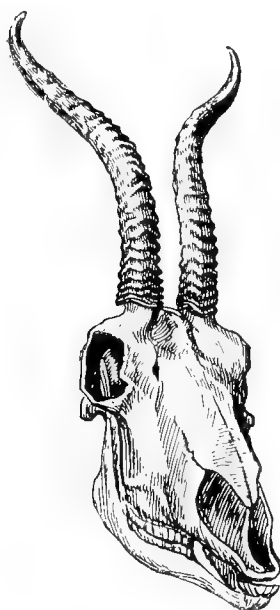
The true gazelles, from which the springbuck is now separated as a genus by itself (*Antidorcas*), form a very extensive group of delicately built antelopes of easy definition. They are of medium or rather small size, with the muzzle of ordinary shape, the neck not unduly elongated, and no fold containing a crest of long erectile hairs down the middle of the back. To suit the nature of their haunts, their coloration is generally of a sandy hue, with the under parts white, and the face in most cases marked with parallel dark and light longitudinal streaks; dark bands being also frequently present on the rump and on the flanks to separate the tawny of the back from the white beneath. The knees are very generally furnished with brush-like tufts of long, stiff hairs; and the tail is either short or of medium length. With the exception of four species, horns are present in both sexes; those of the males being stout, distinctly ridged, and generally of about the same length as the head, although occasionally much longer. Except at the tips, they curve backwards, so as to present an anteriorly convex lower portion, above which they are generally more or less curved forwards and upwards. Gazelles have a wider geographical distribution than any other genus of antelopes, and are, for the most part, inhabitants of more or less desert regions, or their confines.

The Tibetan goa belongs to a small and aberrant group of the genus in which the tail is very short, the usual dark and light streaks on the face are wanting, and the females are hornless. As a species, it

is distinguished by its comparatively small size, and the strongly marked backward curvature of the horns, which are not hooked at the tips. Height at shoulder about 25 inches. Weight about 45 lbs.

*Distribution.*—The plateau of Tibet and some of the adjacent parts of Central Asia.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
14 $\frac{3}{8}$	3 $\frac{3}{8}$	2	Hanle, Spiti	Hon. Walter Rothschild.
-13 $\frac{1}{2}$	...	...	?	Lieut.-Col. T. Greenaway.
13 $\frac{1}{2}$	3 $\frac{3}{8}$	5 $\frac{1}{4}$	Hills N. of Sikim	Hume Collection, British Museum.
-13 $\frac{1}{4}$	4	...	Tibet	Major-General Alexander A. A. Kinloch.
-13 $\frac{1}{4}$	3 $\frac{1}{2}$	3	Ladak	Capt. H. W. Codrington.
-13 $\frac{3}{8}$	4	2 $\frac{1}{4}$	Do.	Do.
13 $\frac{3}{8}$	4	3 $\frac{3}{8}$	Tibet	H. C. V. Hunter.
-13 $\frac{3}{8}$	3 $\frac{3}{8}$	6 $\frac{1}{4}$	S.E. of Hanle	P. H. G. Powell-Cotton.
-13	3 $\frac{7}{8}$	5 $\frac{7}{8}$	Tibet	Bombay Natural History Society's Museum.
13	4 $\frac{1}{8}$	4 $\frac{1}{2}$	East Ladak	Col. J. Biddulph.
13	3 $\frac{3}{4}$	1 $\frac{1}{2}$	?	Captain C. B. Vandeleur.
-13	...	...	?	Indian Museum.
13	3 $\frac{3}{4}$	5 $\frac{3}{8}$	N. Sikim	Surgeon-Captain A. Pearse.
12 $\frac{7}{8}$	3 $\frac{7}{8}$	4 $\frac{3}{4}$	Hills N. of Kumaon	A. O. Hume, C.B.
12 $\frac{7}{8}$	3 $\frac{7}{8}$	4 $\frac{3}{8}$	?	The late B. H. Hodgson, British Museum.
12 $\frac{3}{4}$	3 $\frac{7}{8}$	2 $\frac{1}{2}$	Hills N. of Kumaon	Hume Collection, British Museum.
12 $\frac{5}{8}$	4 $\frac{1}{4}$	5 $\frac{1}{8}$	Near Hanle	H. Z. Darrah.
12 $\frac{1}{2}$	3 $\frac{3}{8}$	7	?	Arnold Pike.
12 $\frac{3}{8}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	South of Hanle	Col. F. C. Lister-Kay.
12 $\frac{1}{4}$	3 $\frac{1}{2}$	6 $\frac{1}{4}$	Ladak	David T. Hanbury.
-12 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{16}$	Tibet	Prince Henri d'Orléans, Paris Museum.
-12 $\frac{3}{8}$	3 $\frac{1}{2}$	6 $\frac{1}{2}$	Do.	Sir Edmund G. Loder, Bart.
12 $\frac{3}{8}$	3 $\frac{5}{8}$	5	Ladak	Capt. F. E. S. Adair.
-12	3 $\frac{3}{4}$	5	Tibet	Capt. H. M. Biddulph.
12	3 $\frac{5}{8}$	2 $\frac{1}{2}$	Do.	H. C. V. Hunter.
12	4	5 $\frac{1}{2}$	Do.	Rowland Ward.
11 $\frac{3}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	?	R. Johnstone.
11 $\frac{5}{8}$	3 $\frac{3}{8}$	5 $\frac{7}{8}$	Tibet	The late B. H. Hodgson, British Museum.
11 $\frac{1}{2}$	3 $\frac{5}{8}$	4 $\frac{1}{8}$	Do.	Hon. Walter Rothschild.
11 $\frac{1}{4}$	3 $\frac{1}{2}$	4 $\frac{1}{4}$	Hanle	F. W. H. Walshe.
11 $\frac{1}{4}$	3 $\frac{1}{4}$	4 $\frac{1}{4}$	?	J. V. Phelps.
11	3 $\frac{5}{8}$	3 $\frac{3}{8}$	Ladak	R. Lydekker, British Museum.



Skull and Horns of Przewalski's Gazelle, from a specimen shot by Prince Demidoff.

**PRZEWALSKI'S GAZELLE** (*Gazella przewalskii*).

Nearly allied to the goa, from which it differs by its rather larger size, and the distinct hooks formed by the tips of the horns of the bucks. General colour in summer, deep fawn ; in winter, pale finely grizzled fawn ; white of buttocks running up in an angle on each side of the tail, which is very sharp, and almost concealed by the fur. Front of limbs more or less brown ; no tufts of hair on the knees.

*Distribution.*—Mongolia.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
11	4 $\frac{3}{8}$	4 $\frac{3}{8}$	Altai . . .	St. George Littledale.
10 $\frac{1}{4}$	4 $\frac{3}{8}$	2 $\frac{3}{4}$	?	British Museum.
10	4	4 $\frac{5}{8}$	?	Henri de Bourbon, Comte de Bardi.
10	4 $\frac{3}{16}$	6	Altai . . .	Prince Demidoff.
9 $\frac{3}{4}$	4 $\frac{1}{8}$	4 $\frac{3}{8}$	North of Pekin .	The late R. Swinhoe, British Museum.
8 $\frac{11}{16}$	3 $\frac{3}{4}$	4 $\frac{3}{8}$	North China . .	Père A. David, Paris Museum.



Skulls and Horns of Mongolian (1, 3, 5) and Persian (2, 4) Gazelle. From specimens in the Collection of A. O. Hume.

MONGOLIAN GAZELLE (*Gazella gutturosa*).

*Jaeisw* or *Sava-keek* in Turkestan.      *Hwang-yang* in Mongolia.

Belonging to the same group of the genus as the goa, this larger species takes its scientific title from the peculiar swollen condition of the throat of the male during the pairing season. In addition to its size (height at shoulder about 30 inches), the species is characterised by the comparatively slight backward curvature of the horns, which are not hooked at the tips; the general colour being pale fawn, with the rump, flanks, and the whole of the limbs white.

*Distribution*.—Northern and Eastern Mongolia and the southern borders of Russian Transbaikalia. This gazelle was discovered by the Russian traveller Pallas, who described it as long ago as the year 1777.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
15 $\frac{3}{4}$	5	6.34	Lob Nor . .	A. O. Hume, C.B.
14 $\frac{3}{4}$	4 $\frac{7}{8}$	3	Chinese Turkestan .	Major C. S. Cumberland.
14 $\frac{5}{8}$	31 $\frac{3}{8}$	4 $\frac{3}{4}$	Lob Nor . .	Prince Henri d'Orléans, Paris Museum.
14 $\frac{1}{2}$	4 $\frac{1}{2}$	3	Wana Plain, Waziristan	A. J. Grant.
13 $\frac{3}{4}$	4 $\frac{7}{8}$	4 $\frac{1}{2}$	Chinese Turkestan .	E. L. Phelps.
13 $\frac{3}{4}$	4 $\frac{1}{2}$	6	Saissan, West Siberia.	Dr. O. Finsch, British Museum.
13 $\frac{3}{8}$	4 $\frac{3}{4}$	5 $\frac{1}{2}$	?	Hume Collection, British Museum.
13 $\frac{1}{4}$	3 $\frac{3}{4}$	3 $\frac{1}{8}$	?	Capt. P. J. Gordon.
13 $\frac{1}{8}$	4 $\frac{5}{8}$	6 $\frac{1}{4}$	Mongolia	Sir Edmund G. Loder, Bart.
11 $\frac{1}{2}$	4 $\frac{7}{8}$	3	Chinese Turkestan	Reginald Beech.

### PERSIAN GAZELLE (*Gazella subgutturosa*).

A near relation of the Mongolian species, but distinguished by the longer tail, of which the upper surface is crested with black, and the presence of dark and light markings on the face. These face-markings differ, however, from those of all other species save the Marica gazelle (*G. marica*) of Arabia, in that the upper portion of the face, at least in aged individuals, is pure white, so that the central dark band is interrupted on the forehead. From the Marica the Persian gazelle may be distinguished by its superior size (height at shoulder from 26 to 27 inches), and the absence of horns in the female. The larynx is swollen, forming a peculiar prominence on the front of the upper part of the throat.

There are two distinct local races of this gazelle, the ordinary Caspian and Persian *G. subgutturosa typica*, and the Yarkand *G. subgutturosa yarcandensis*; the latter being distinguished by its superior dimensions and darker face-markings, as well as by the much smaller degree of divergence of the horns of the males, which are also relatively shorter.

*Distribution*.—Western Asia from Asia Minor and Caucasia in the west to Turkestan, Yarkand, and Mongolia in the east.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-14 $\frac{1}{4}$	5 $\frac{1}{4}$	6	Near Tiflis .	Clive Phillippis-Wolley.
13 $\frac{1}{2}$	4 $\frac{1}{2}$	4	Khelat	A. O. Hume, C.B.
12 $\frac{3}{8}$	4	5 $\frac{1}{2}$	Syria .	Hon. Walter Rothschild.
12	4	5	Asia Minor	Do.
12	4	2 $\frac{3}{4}$	Khelat .	A. O. Hume C.B.

The undermentioned belong to the Yarkand race.

16	5	3 $\frac{1}{4}$	Yarkand .	A. O. Hume, C.B.
15 $\frac{7}{8}$	5	3 $\frac{1}{4}$	Do.	Do.
-15 $\frac{1}{4}$	...	5	Maralbashi	H. Lennard.
14	4 $\frac{3}{4}$	5.75	Yarkand . .	A. O. Hume, C.B.
14	5	5 $\frac{3}{4}$	Eastern Turkestan .	Col. J. Biddulph.
13 $\frac{1}{2}$	4 $\frac{3}{4}$	6 $\frac{3}{8}$	Maralbashi .	David T. Hanbury.

**PERSIAN GAZELLE** (*Gazella subgutturosa*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-13 $\frac{3}{8}$	5 $\frac{9}{16}$	7 $\frac{1}{8}$	Altai . . . .	Prince Henri d'Orléans, Paris Museum.
13	4 $\frac{5}{8}$	7 $\frac{1}{8}$	Maralbashi . .	P. Church.
12 $\frac{3}{4}$	4 $\frac{3}{8}$	3 $\frac{3}{8}$	Altai . . . .	St. George Littledale.
-12	...	2	Maralbashi . .	H. Lennard.



Head of Springbuck.



Head of Dorcas Gazelle.

**DORCAS GAZELLE** (*Gazella dorcas*).

This well-known species brings us to the more typical group of gazelles, in the members of which the central dark face-band is continued uninterruptedly up the forehead, and horns are developed in both sexes. Among the special characteristics of the present species may be noted the circumstance that the white area of the rump does not invade the fawn of the back, the indistinctness of the dark lateral band dividing the fawn of the upper parts from the white beneath, and the perfectly lyrate form of the horns, which are of medium length, with the middle portion twisted outwardly, and the tips converging towards one another. Height at shoulder, 21 to 22 inches; total length about 42 inches. General colour pale fawn, of rather variable tint, with the face-markings distinct.

*Distribution*.—Morocco, Algeria, and thence eastwards through Egypt into Palestine and Syria. By the Arabs of Algeria this gazelle is known as rhozal or hemar.



DORCAS GAZELLE (*Gazella dorcas*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
13 $\frac{1}{8}$	4 $\frac{1}{4}$	2 $\frac{1}{2}$	Algeria . . . .	Sir Edmund G. Loder, Bart.
-12 $\frac{1}{2}$	3 $\frac{5}{8}$	5 $\frac{1}{8}$	Do. . . . .	Viscount Edmond de Poncins.
12 $\frac{1}{2}$	3 $\frac{5}{8}$	3 $\frac{3}{4}$	Southern Sahara . . .	J. J. S. Whitaker.
12 $\frac{3}{8}$	3 $\frac{3}{4}$	2 $\frac{3}{4}$	Algeria . . . . .	Sir Edmund G. Loder, Bart.
12 $\frac{3}{8}$	3 $\frac{3}{8}$	...	Do. . . . .	British Museum.
12 $\frac{1}{4}$	4	2 $\frac{1}{4}$	Do. . . . .	Rowland Ward.
-12 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	Do. . . . .	A. E. Pease.
12	4	3 $\frac{3}{4}$	Do. . . . .	J. H. Thomas.
11 $\frac{7}{8}$	3 $\frac{5}{8}$	4 $\frac{1}{2}$	Do. . . . .	Sir Victor Brooke's Collection.
-11 $\frac{3}{4}$	3 $\frac{3}{4}$	5 $\frac{1}{8}$	Do. . . . .	Julius Jeppe.
. 11 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{7}{8}$	Do. . . . .	E. N. Buxton.
-11 $\frac{1}{4}$	3 $\frac{5}{8}$	3 $\frac{1}{8}$	Do. . . . .	W. E. Pease.
-10 $\frac{7}{8}$	4	4 $\frac{1}{4}$	Do. . . . .	Count E. Hoyos.
10 $\frac{5}{8}$	4	2 $\frac{1}{4}$	Shores of Red Sea . .	British Museum.
10 $\frac{1}{8}$	3 $\frac{5}{8}$	2 $\frac{3}{4}$	Nubia . . . . .	Sir Victor Brooke's Collection.
-♀ 9 $\frac{7}{8}$	...	...	Algeria . . . . .	A. E. Pease.
-9 $\frac{3}{4}$	4	3 $\frac{3}{4}$	Do. . . . .	Dr. Percy Rendall.
-♀ 9 $\frac{1}{4}$	1 $\frac{3}{4}$	5 $\frac{1}{2}$	Do. . . . .	A. E. Pease.
-8 $\frac{3}{4}$	4	3 $\frac{1}{2}$	Do. . . . .	Count Scheibler.
-♀ 6	...	...	Do. . . . .	Viscount Edmond de Poncins.

EDMI or ATLAS GAZELLE (*Gazella cuvieri*).

From the dorcas the present species may be readily distinguished by its superior size, the imperfectly lyrate form of the horns, which diverge more or less regularly upwards, the presence of a black spot on the tip of the muzzle, and the rough character of the hair. General colour dull fawn, with a very indistinct lateral band, well-defined face-markings, the lower portion of the tail crested with black, and the under parts, buttocks, and inner surfaces of fore-legs pure white. Height at shoulder from 26 to 27 inches.

*Distribution*.—The mountains of Morocco, Algeria, and Tunisia, where it is known by the name of edmi or admi.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
14 $\frac{7}{8}$	5	3 $\frac{5}{8}$	Algeria . .	Sir Edmund G. Loder, Bart.
-14 $\frac{1}{2}$	3 $\frac{7}{8}$	3 $\frac{1}{2}$	Do. . . .	A. E. Pease.
14 $\frac{1}{4}$	3 $\frac{3}{4}$	5 $\frac{1}{4}$	Southern Sahara .	J. J. S. Whitaker.
-14 $\frac{1}{8}$	...	...	Algeria . .	A. E. Pease.
♀ 13 $\frac{7}{8}$	3 $\frac{1}{2}$	7 $\frac{1}{8}$	Do.	E. N. Buxton.
-13 $\frac{5}{8}$	4 $\frac{1}{4}$	5 $\frac{1}{2}$	Do.	Viscount Edmond de Poncins.
-13 $\frac{1}{2}$	4	$\frac{1}{2}$	Do.	A. E. Pease.
12 $\frac{3}{4}$	4 $\frac{3}{8}$	3 $\frac{5}{8}$	Do. . . .	E. N. Buxton.
12 $\frac{3}{8}$	3 $\frac{3}{4}$	5 $\frac{1}{2}$	Do. . . .	Rowland Ward.
12 $\frac{3}{8}$	3 $\frac{1}{2}$	5 $\frac{1}{4}$	Do. . . .	Hon. R. A. Ward.
♀ 11	2 $\frac{1}{2}$	5 $\frac{7}{8}$	Do.	J. J. S. Whitaker.
-♀ 9 $\frac{1}{2}$	2 $\frac{3}{4}$	4	Do. . . .	A. E. Pease.
♀ 8	2 $\frac{1}{4}$	5 $\frac{1}{2}$	Do. . . .	Capt. G. J. Cuthbert.

**ARABIAN GAZELLE** (*Gazella arabica*).

Belonging to the same sub-group of the genus as the edmi, this elegant gazelle may be differentiated from that species by its smaller size, smoother hair, and darker coloration, the general tint of the upper parts being dark smoky fawn, with the central face-band rufous fawn, and a black spot on the tip of the muzzle. Height at shoulder, 24 or 25 inches.

*Distribution*.—Western Arabia, where it is known as ghasal, its Syrian title being ariel or aiel. In spite of its being one of the commonest of the gazelles, and also one which can easily be obtained in captivity, very little authentic information is forthcoming as to its habits, and even its range is not yet fully determined.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$8\frac{1}{2}$	4	2	Mocha, South Arabia	W. T. Blanford, British Museum.
— ♀ $7\frac{1}{2}$	2	$4\frac{3}{4}$	?	Dr. Percy Rendall.
$4\frac{7}{8}$	$3\frac{1}{8}$	$3\frac{5}{8}$	South Arabia	Sir Victor Brooke's Collection.
♀ $4\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{2}$	?	Major H. G. C. Swayne.



Head of Indian Gazelle, from a specimen shot by Loftus M. le Champion.

### INDIAN GAZELLE (*Gazella bennetti*).

Closely allied to the Arabian species, this gazelle (the chikara of the natives and the ravine-deer of many Anglo-Indian sportsmen) is of smaller dimensions and much lighter colour; the height at the shoulder varying from 23 to 24 inches, and the general colour of the upper parts being dull fawn.

*Distribution*.—Peninsular India, thence extending westward through Baluchistan to the shores of the Persian Gulf. In the *Book of Antelopes* Messrs. Sclater and Thomas remark that, like the lion and the hunting-leopard, this gazelle belongs to an African type, and appears to have been originally a migrant from the west into India, whence it has spread over the greater part of the peninsula. It should, however, be remembered that extinct gazelles and hunting-leopards occur in the north of India.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-15	5	...	Rajputana . . .	H.H. Maharaj Rana Bahadur of Jhalawar.
14½	4½	8½	?	L. M. le Champion. (See illustration.)
-14½	...	...	Ferozepore District .	Captain Harry V. Brooke.

INDIAN GAZELLE (*Gazella bennetti*)—continued.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-14 $\frac{1}{8}$	...	...	Sirsa District, Punjab	Captain H. Trevor.
14	4 $\frac{3}{8}$	5 $\frac{3}{4}$	Ferozepore District	Captain Harry V. Brooke.
-14	...	...	Near Lahore	Major-General Alexander A. A. Kinloch (measured by).
-13 $\frac{7}{8}$	4 $\frac{1}{4}$	6 $\frac{1}{2}$	Do.	C. P. Down.
13 $\frac{3}{4}$	4 $\frac{1}{2}$	7	?	Sir Victor Brooke's Collection.
13 $\frac{3}{4}$	4 $\frac{3}{8}$	8 $\frac{1}{2}$	Sind	L. Napier.
13 $\frac{5}{8}$	4 $\frac{3}{8}$	7 $\frac{1}{2}$	Bikanir	C. F. Vander-Byl.
13 $\frac{1}{4}$	4	4 $\frac{1}{2}$	?	Sir Edmund G. Loder, Bart.
13 $\frac{1}{4}$	4	6 $\frac{1}{4}$	?	Major O. A. Chambers.
-13 $\frac{1}{4}$	4 $\frac{1}{4}$	...	Delhi	Major-General Alexander A. A. Kinloch.
-13 $\frac{1}{8}$	4 $\frac{1}{2}$	4	Hissar	Captain P. J. Gordon.
13	3 $\frac{1}{2}$	6	Bikanir	Major H. C. Morland.
-13	3 $\frac{1}{8}$	3 $\frac{1}{8}$	Gwalior	Viscount Edmond de Poncins.
-13	4 $\frac{1}{4}$	5	?	Major Colvin Stewart.
13	3 $\frac{3}{4}$	6	?	Major R. H. Ratray.
12 $\frac{3}{4}$	4 $\frac{1}{4}$	5	Goorgaon, Punjab	A. O. Hume, C.B.
12 $\frac{3}{4}$	4 $\frac{3}{8}$	7 $\frac{1}{2}$	?	H. C. V. Hunter.
12 $\frac{3}{4}$	4 $\frac{1}{4}$	5 $\frac{7}{8}$	North Punjab	Colonel J. Biddulph.
12 $\frac{3}{4}$	4 $\frac{1}{4}$	7	?	Captain L. I. B. Hulke.
-12 $\frac{3}{4}$	4 $\frac{3}{4}$	6 $\frac{3}{4}$	Bikanir	Captain H. W. Codrington.
-12 $\frac{3}{4}$	4	6	Jodhpore	H.H. Maharaja of Bikanir.
12 $\frac{1}{2}$	4 $\frac{1}{4}$	5 $\frac{1}{4}$	Bikanir	Lieut.-Col. G. D. F. Sullivan.
-12 $\frac{1}{2}$	...	...	?	H.H. the Maharaja of Travancore, C.C.S.I.
12 $\frac{3}{8}$	4	5 $\frac{1}{2}$	Simrol, Bengal	Colonel John Evans, British Museum.
12 $\frac{3}{8}$	4 $\frac{7}{8}$	5 $\frac{3}{8}$	Bikanir	Lieut.-Col. G. D. F. Sullivan.
12 $\frac{3}{8}$	4 $\frac{1}{8}$	6	Do.	P. B. Vander-Byl.
-12 $\frac{3}{8}$	4 $\frac{5}{8}$	6 $\frac{3}{8}$	Kythal, Punjab	Captain M. M'Neill.
12 $\frac{1}{4}$	4 $\frac{3}{8}$	5 $\frac{1}{4}$	Dholpur	A. J. Coppinger.
-12 $\frac{1}{4}$	4	7	Bikanir	Captain C. B. Vandeleur.
12	4	7 $\frac{1}{2}$	Punjab	Captain A. Hicks-Beach.

INDIAN GAZELLE (*Gazella bennetti*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-12	...	...	Kathiawar	Lieut.-Col. L. L. Fenton.
12	...	...	Banda District	Indian Museum.
12	4½	...	Meerut, N.W. Provinces	C. Hastings-Wood.
12	3⅝	6	Khandesh	A. Cumine.
-12	4¼	6⅜	Deccan	Vety.-Capt. G. H. Evans.
-12	3⅝	7¼	Bikanir	H.H. Maharaja of Bikanir.
11⅝	4	4¾	?	Do.
11⅝	4	4½	?	Sir Robert Harvey, Bart.
11½	4½	5¼	Bikanir	Captain F. E. S. Adair.
11⅜	3⅝	4⅝	?	Captain N. C. Taylor.
11¼	4¼	5	Nagaon, Central Provinces	Colonel R. J. Heber-Percy.
11⅝	4⅝	5⅜	Etawah	Hume Collection, British Museum.
11⅝	4¼	5	Jodhpore	Captain G. J. Fitzgerald.
11	4	5¼	Bikanir	Captain C. F. Pinney.
11	3⅝	6	Berar	C. H. Seely.
♀ 7⅞	⅝	2¼	?	Sir Victor Brooke's Collection.
-♀ 5½	...	...	Banda District	Indian Museum.



Head of Female Speke's Gazelle.

**SPEKE'S GAZELLE** (*Gazella spekei*).

*Dhero* of the Somalis.

From the edmi and its allies, with which it agrees in its leading characteristics, this very peculiar gazelle is readily distinguished by the development of a flabby corrugated elevation on the skin of the nose ; the general colour of the upper parts being pale brownish fawn, with the lateral band darker than in the other members of the sub-group. Height at shoulder from 23 to 24 inches.

The protuberance on the nose is probably connected with the sexual function ; in dead specimens it exhibits a slight cavity beneath the skin which can be inflated by blowing air into the nostrils, and it is therefore probably capable of distension during life.

*Distribution*.—The plateau in the interior of Somaliland.

SPEKE'S GAZELLE (*Gazella spekei*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-12	$3\frac{3}{4}$	$5\frac{1}{4}$	Somaliland .	Viscount Edmond de Poncins.
-12	...	...	Northern Somaliland .	J. Menges.
$11\frac{3}{4}$	$3\frac{3}{4}$	$4\frac{5}{8}$	The Haud . . .	Major H. G. C. Swayne.
$11\frac{5}{8}$	$3\frac{3}{4}$	$2\frac{1}{2}$	Do. . .	Col. A. Paget.
$11\frac{1}{2}$	$4\frac{3}{8}$	$2\frac{3}{4}$	Somaliland .	T. W. H. Clarke.
$11\frac{1}{4}$	$3\frac{7}{8}$	$4\frac{5}{8}$	Do.	Viscount Edmond de Poncins.
$11\frac{1}{4}$	4	4	Do.	W. H. Cobb.
$11\frac{1}{8}$	4	$5\frac{1}{4}$	Do. .	C. Liddell.
11	4	4	Do. . .	A. H. Straker.
11	$3\frac{7}{8}$	5	Do. . .	Major H. C. Morland.
11	$4\frac{1}{8}$	$3\frac{5}{8}$	Do.	Lord Delamere.
$10\frac{3}{4}$	$3\frac{1}{4}$	$3\frac{3}{4}$	Do. .	Sir Edmund G. Loder, Bart.
$10\frac{3}{4}$	$4\frac{5}{8}$	$5\frac{1}{4}$	Do. .	B. R. M. Glossop.
$10\frac{3}{4}$	4	4	Do. .	R. M'D. Hawker.
$10\frac{3}{4}$	$3\frac{7}{8}$	3	Do. .	C. N. Welsh.
$10\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	Do. . .	E. Lort-Phillips.
$10\frac{3}{4}$	4	$3\frac{3}{4}$	Do.	B. Vincent.
$10\frac{5}{8}$	$3\frac{7}{8}$	$4\frac{1}{4}$	Do. . .	Capt. G. F. T. Leather.
$-10\frac{1}{2}$	$4\frac{1}{8}$	$3\frac{1}{2}$	Do. . .	Count Scheibler.
$10\frac{1}{2}$	$3\frac{3}{4}$	$2\frac{1}{2}$	Do. .	The late W. Babington.
$-10\frac{1}{2}$	$4\frac{5}{8}$	$3\frac{3}{4}$	Do. .	J. Brander Dunbar.
$10\frac{1}{2}$	$3\frac{3}{4}$	4	Do. .	Capt. G. Campbell.
$-10\frac{5}{8}$	$3\frac{7}{8}$	$4\frac{1}{2}$	Do.	Count E. Hoyos.
$10\frac{3}{8}$	$3\frac{7}{8}$	$4\frac{1}{8}$	Do. .	Sir H. D. Tichborne, Bart.
$-10\frac{3}{8}$	$3\frac{3}{8}$	$3\frac{3}{4}$	Do. . .	P. H. G. Powell Cotton.
$10\frac{1}{4}$	4	$4\frac{1}{4}$	Do. . .	F. G. Gunnis.
$10\frac{1}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	Do. .	P. B. Vander-Byl.
$10\frac{1}{4}$	$3\frac{7}{8}$	4	Do. .	H. R. H. le Duc d'Orléans.
$-10\frac{1}{4}$	...	...	Do.	C. V. A. Peel.
$-10\frac{1}{2}$	4	$4\frac{1}{4}$	Do.	J. Johnston-Stewart.

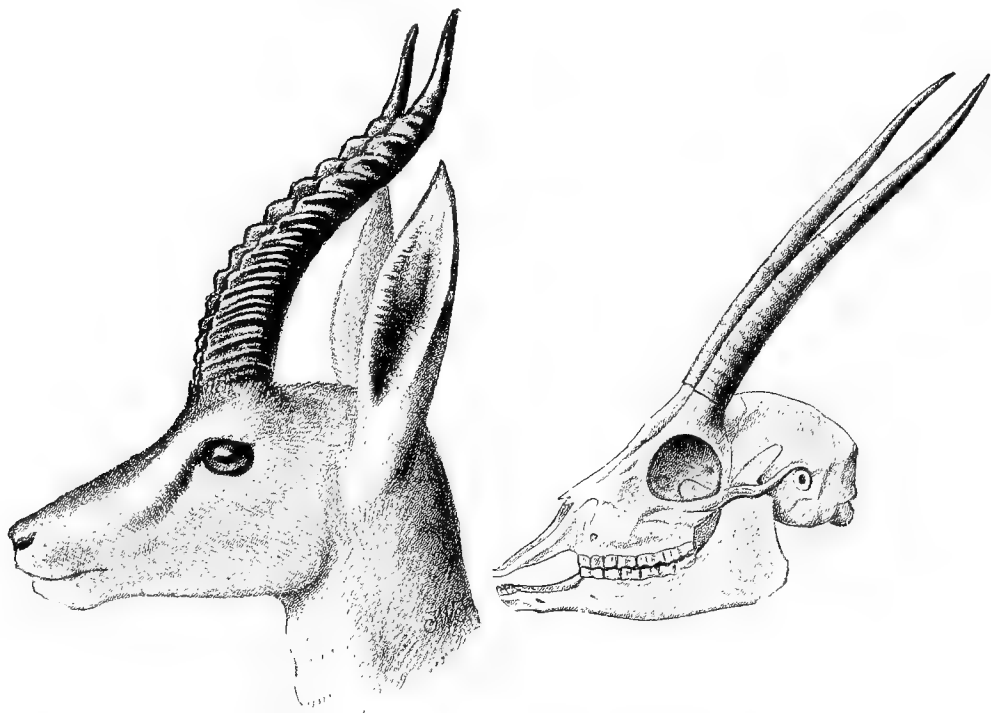


SPEKE'S GAZELLE (*Gazella spekei*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
10 $\frac{1}{8}$	3 $\frac{7}{8}$	4 $\frac{1}{2}$	Somaliland . . .	Hon. Walter Rothschild.
10 $\frac{1}{8}$	3 $\frac{8}{8}$	3 $\frac{1}{2}$	Do. . . .	W. D. James.
10	3 $\frac{1}{2}$	4 $\frac{3}{8}$	Do. . . .	Count J. de Bylands.
-10	4	4 $\frac{1}{4}$	Do. . . .	A. E. Pease.
-10	4	5 $\frac{1}{4}$	Do. . . .	Julius Jeppe.
-10	3 $\frac{3}{4}$	2 $\frac{1}{4}$	Do. . . .	Dr. Percy Rendall.
-♀ 9 $\frac{7}{8}$	...	...	Do. . . .	J. Menges.
♀ 9 $\frac{1}{2}$	2 $\frac{7}{8}$	3 $\frac{1}{4}$	Do. . . .	T. W. H. Clarke.
♀ 9	2 $\frac{1}{2}$	5 $\frac{1}{4}$	Do. . . .	Capt. G. F. T. Leather.
♀ 8	2 $\frac{1}{2}$	4	Do. . . .	B. R. M. Glossop.
♀ 8	2 $\frac{1}{4}$	3 $\frac{1}{4}$	Do. . . .	J. Benett-Stanford.
-♀ 7 $\frac{3}{4}$	2	2 $\frac{1}{4}$	Do. . . .	A. E. Pease.
-♀ 7 $\frac{3}{4}$	...	..	Do. . . .	C. V. A. Peel.



Head of Male Speke's Gazelle.



Head of Male and Skull of Female Pelzel's Gazelle.

**PELZELN'S GAZELLE** (*Gazella pelzelni*).

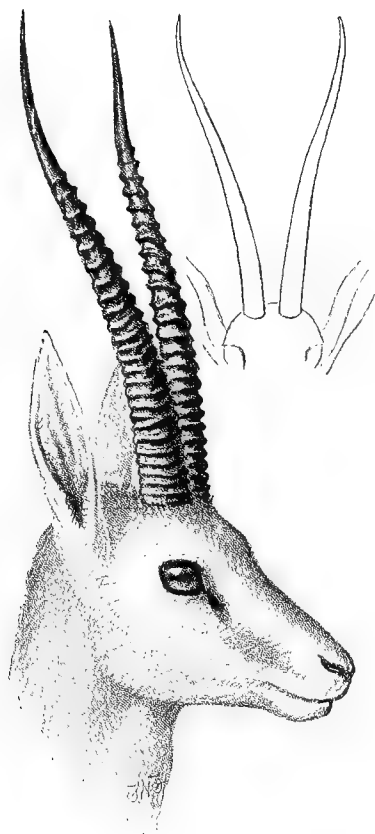
This species, the lowland gazelle of Somaliland, is nearly related to the last, from which it differs by the absence both of the corrugated elevation on the nose and of the black spot on the muzzle. It is also slightly larger than Speke's gazelle, the height at the shoulder being about 25 inches; and its colour is somewhat more rufous, the light lateral band being distinct, and the dark band rufous brown only somewhat darker than the back, without any tendency to blackness. The dark and light bands on the cheeks are relatively short and indistinct.

*Distribution*.—The plains of Northern Somaliland, bordering the sea.

Within fifty miles of the shore this gazelle is exceedingly numerous, and may often be seen in large herds. It is termed by the natives dhero, in common with Speke's gazelle.

PELZELN'S GAZELLE (*Gazella pelzelni*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-13 $\frac{3}{8}$	...	...	Northern Somaliland	J. Menges.
12 $\frac{1}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{4}$	Somaliland	Major H. G. C. Swayne.
12 $\frac{1}{4}$	4 $\frac{1}{8}$	5 $\frac{1}{2}$	Do.	Lord Delamere.
12 $\frac{1}{8}$	3 $\frac{5}{8}$	4 $\frac{1}{2}$	Do.	The late W. Babington.
-12	3 $\frac{1}{2}$	4 $\frac{3}{4}$	Do.	Count E. Hoyos.
12	3 $\frac{3}{4}$	4 $\frac{1}{8}$	Do.	Capt. G. Campbell.
12	3 $\frac{3}{4}$	5 $\frac{1}{4}$	Do.	Viscount Edmond de Poncins.
11 $\frac{1}{2}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	Do.	T. W. H. Clarke.
11 $\frac{1}{2}$	3 $\frac{1}{2}$	4 $\frac{1}{4}$	Do.	Major H. C. Morland.
11 $\frac{1}{2}$	3 $\frac{1}{2}$	5	Do.	Capt. W. H. Williamson.
11 $\frac{1}{4}$	4 $\frac{1}{8}$	5 $\frac{1}{2}$	Do.	A. H. Straker.
11 $\frac{1}{4}$	3 $\frac{7}{8}$	4 $\frac{3}{8}$	Do.	Rowland Ward.
-11 $\frac{1}{4}$	4 $\frac{1}{2}$	5 $\frac{1}{2}$	Do.	S. Payne-Gallwey.
-11 $\frac{1}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{4}$	Do.	A. E. Pease.
-11 $\frac{1}{4}$	4	3 $\frac{1}{2}$	Do.	Sir Edmund G. Loder, Bart.
-11 $\frac{1}{4}$	3 $\frac{5}{8}$	5	Do.	J. Johnston-Stewart.
11 $\frac{1}{8}$	3 $\frac{5}{8}$	4 $\frac{1}{4}$	Do.	Capt. G. F. T. Leather.
11 $\frac{1}{8}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	Do.	Col. A. Paget.
-11 $\frac{1}{8}$	4	5	Do.	J. Brander Dunbar.
11	3 $\frac{3}{4}$	4 $\frac{1}{8}$	Do.	A. S. Trevor.
11	3 $\frac{3}{4}$	3 $\frac{3}{8}$	Do.	Prince Boris Czetwertynski.
11	3 $\frac{3}{4}$	3 $\frac{3}{4}$	Do.	R. M'D. Hawker.
10 $\frac{3}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{8}$	Do.	Sir Edmund G. Loder, Bart.
10 $\frac{5}{8}$	3 $\frac{3}{4}$	4 $\frac{1}{4}$	Do.	F. G. Gunnis.
-10 $\frac{1}{2}$	3 $\frac{3}{4}$	...	Do.	C. V. A. Peel.
10 $\frac{3}{8}$	3 $\frac{5}{8}$	2 $\frac{7}{8}$	Do.	Julius Jeppe.
♀ 8 $\frac{5}{8}$	...	...	Do.	J. Menges.
-♀ 8 $\frac{1}{4}$	2 $\frac{1}{2}$	...	Do.	C. V. A. Peel.
-♀ 8 $\frac{1}{8}$	...	...	Do.	J. Brander Dunbar.
♀ 8	1 $\frac{7}{8}$	3 $\frac{1}{4}$	Do.	Julius Jeppe.
♀ 7 $\frac{5}{8}$	1 $\frac{3}{4}$	2 $\frac{3}{4}$	Do.	T. W. H. Clarke.



Head of Loder's Gazelle.

**LODER'S GAZELLE** (*Gazella leptoceros*).

Arab name, *Rhim*.

Although originally described as long ago as the year 1842, very little was known of this gazelle till specimens were procured by Sir E. G. Loder, and described as a new species under the name of *G. loderi*. Further investigation proved them to be inseparable from the species named by F. Cuvier. Agreeing with the preceding members of the group in the white of the rump not invading the haunches, the species is easily recognisable by the long and slender form of the horns, and the very pale tone of the coloration of the upper parts, which may be described as pale sandy fawn, with the characteristic gazelline

markings only indistinctly defined. On the face the dark streaks are sandy instead of rufous; and the light bands on the flanks are almost imperceptible, while the dark ones below them are pale sandy with the very slightest tinge of brown; the tail being sandy at the base and gradually darkening to brownish-black towards the tip. In the male the horns are about twice the length of the head, very slender, and closely and heavily ridged almost to the tips. Height at shoulder about 28 inches. Weight, 34 lbs.

*Distribution.*—The sandy tracts of the interior of Algeria, Tunisia, and Western Egypt, thence extending southwards into Nubia and Sennar. The native name is rhem or rhim (reem).

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
15 $\frac{3}{4}$	3 $\frac{1}{2}$	6 $\frac{1}{4}$	South of Biskra . .	Dr. Dawtrey Drewitt.
14 $\frac{1}{2}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	Do. . .	F. H. Barber.
14 $\frac{7}{16}$	3 $\frac{7}{8}$	4 $\frac{3}{4}$	Algeria . . .	Julius Jeppe.
14 $\frac{1}{4}$	3 $\frac{1}{2}$	10 $\frac{1}{4}$	Do. . .	Sir Edmund G. Loder, Bart.
14 $\frac{1}{4}$	3 $\frac{3}{8}$	6 $\frac{3}{8}$	Southern Tunisia .	J. J. S. Whitaker.
14	3 $\frac{7}{8}$	3	Algeria . . .	Hon. R. A. Ward.
-14	3 $\frac{5}{8}$	5 $\frac{1}{4}$	Tue Erg . . .	A. E. Pease.
14	3 $\frac{3}{4}$	4 $\frac{3}{4}$	Algeria . . .	Mr. Justice Hopley.
13 $\frac{5}{8}$	3 $\frac{5}{8}$	5 $\frac{1}{2}$	Do. . . .	W. E. Pease.
13 $\frac{1}{2}$	3 $\frac{3}{4}$	8 $\frac{3}{4}$	Southern Tunisia .	Sir Edmund G. Loder, Bart.
-13 $\frac{3}{8}$	...	...	Do. . . .	A. E. Pease.
-13 $\frac{3}{8}$	...	...	Do. . . .	J. Menges.
-13 $\frac{1}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	Sahara . . .	Viscount Edmond de Poncins.
13 $\frac{1}{4}$	3 $\frac{1}{2}$	4 $\frac{3}{4}$	Do. . . .	Rowland Ward.
13 $\frac{1}{4}$	3 $\frac{1}{2}$	5 $\frac{3}{4}$	Southern Tunisia .	J. J. S. Whitaker.
13 $\frac{3}{8}$	3 $\frac{3}{4}$	4 $\frac{1}{8}$	Algeria . . .	J. H. Thomas.
-12 $\frac{1}{2}$	3 $\frac{3}{4}$	6 $\frac{1}{2}$	Do. . . .	Julius Jeppe.
-12 $\frac{1}{4}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	Tue Erg . . .	A. E. Pease.
12 $\frac{3}{8}$	3 $\frac{7}{8}$	4 $\frac{3}{4}$	Algeria . . .	Hon. Walter Rothschild.
♀-11 $\frac{5}{8}$	...	...	Southern Tunisia .	J. Menges.
♀ 10 $\frac{1}{4}$	2 $\frac{3}{8}$	3 $\frac{1}{2}$	South of Atlas Mts. .	Lord Grantley.
♀ 9 $\frac{5}{8}$	2 $\frac{1}{8}$	3 $\frac{7}{8}$	Algeria . . .	F. H. Barber.
♀ 9 $\frac{3}{8}$	1 $\frac{7}{8}$	3 $\frac{1}{4}$	Do. . . .	Hon. Walter Rothschild.
♀ 9 $\frac{1}{8}$	2 $\frac{1}{8}$	2 $\frac{3}{4}$	Tunisia . . .	Do.
♀ 9	2 $\frac{1}{4}$	1 $\frac{3}{4}$	Southern Tunisia .	J. J. S. Whitaker.

ISABELLA GAZELLE (*Gazella isabella*).

In all the foregoing gazelles with horns in both sexes, the horns themselves have their tips slightly curved either inwards or upwards, and never bent back so as to form a right angle with the basal portion. On the other hand, the present species and the Muscat gazelle (*G. muscatensis*), while resembling the foregoing in the shape of the white rump-patch and the comparatively light tint of the flank-band, differ by the tips of the horns being hooked inwards or upwards so as to form nearly or completely a right angle. From its ally the present species differs by the pale fawn colour of the upper parts; the lateral bands and other markings being also fawn, instead of blackish. Height at shoulder about 25 inches.

*Distribution*.—The Red Sea littoral from Suakin to Massowa, and through the interior to Bogosland, Barca, and Taka.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
10 $\frac{1}{4}$	3 $\frac{3}{4}$	2 $\frac{3}{4}$	Anseba River, Abyssinia	Sir Victor Brooke's Collection.
10 $\frac{5}{8}$	3 $\frac{3}{4}$	4	Komayli, Abyssinia.	W. T. Blanford, British Museum.
9 $\frac{3}{4}$	3 $\frac{1}{2}$	2 $\frac{3}{8}$	Bogosland . . .	Sir Victor Brooke's Collection.
—9.14	4	3	Between Suakin and Kassala	Prince Henry of Liechtenstein.
9.11	...	...	Do.	Do.
—8.14	4.2	3.12	Do.	Do.
♀ 7	2	3	Do.	Sir Victor Brooke's Collection.
♀ 7	1 $\frac{7}{8}$	2 $\frac{3}{8}$	Kordofan .	British Museum.

HEUGLIN'S GAZELLE (*Gazella tilonura*).

This well-marked species brings us to a small sub-group in which the dark band on the flanks is very strongly defined, and black in colour; the present species being distinguished from its allies by the abrupt inward hooking of the tips of the horns. The general colour is deep sandy, with the central face-band but little darker than the back, no black nose-spot, and the tail sandy at the base but black elsewhere. Height at shoulder about 27 inches.

*Distribution*.—Bogosland, in North-Eastern Africa. Very little is known of this rare species.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
11 $\frac{1}{4}$	4	2 $\frac{1}{2}$	Sudan . . .	Lieut.-Col. Hon. W. Coke.
10 $\frac{3}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{2}$	?	E. Lort-Phillips.
10 $\frac{3}{4}$	4	2 $\frac{1}{8}$	Bogosland, Abyssinia	British Museum.
10 $\frac{1}{4}$	4 $\frac{1}{8}$	3 $\frac{3}{4}$	Do.	Do.
10 $\frac{1}{2}$	4 $\frac{1}{8}$	2 $\frac{7}{8}$	North Africa .	Col. Ralph Vivian.
9 $\frac{7}{8}$	4 $\frac{3}{8}$	1 $\frac{7}{8}$	Bogosland, Abyssinia	Sir Victor Brooke's Collection.
9-1 $\frac{1}{8}$	...	...	Eastern Sudan .	J. Menges.
9 $\frac{7}{8}$	...	1 $\frac{1}{2}$	Anseba River, Abyssinia	Sir Victor Brooke's Collection.
9 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{1}{2}$	North Africa	Col. Ralph Vivian.
9 $\frac{1}{2}$	4 $\frac{1}{4}$	1 $\frac{3}{4}$	Do. .	Do.
8 $\frac{1}{2}$	3 $\frac{3}{8}$	2 $\frac{1}{2}$	?	Lieut. E. Lacy, R.N.
7 $\frac{3}{4}$	3 $\frac{7}{8}$	1 $\frac{5}{8}$	Bogosland, Abyssinia	British Museum.
♀ 6 $\frac{1}{2}$	...	...	Eastern Sudan .	J. Menges.
♀ 5 $\frac{1}{8}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	Abyssinia .	Sir Victor Brooke's Collection.

**SENEGAL or RED-FRONTED GAZELLE** (*Gazella rufifrons*).

This medium-sized and rather stoutly built species agrees with Heuglin's gazelle in the black flank-stripe, but differs by the absence of a distinct inward hooking of the tips of the horns; the general colour being deep sandy rufous, brightening into rich rufous on the forehead and muzzle, without a black nose-spot. The knee-tufts so generally present in gazelles are wanting; and the tail, with the exception of the sandy upper surface of the basal portion, is black. Horns relatively small, regularly divergent, curving at first slightly backwards and then forwards, heavily ridged till the terminal two or three inches.

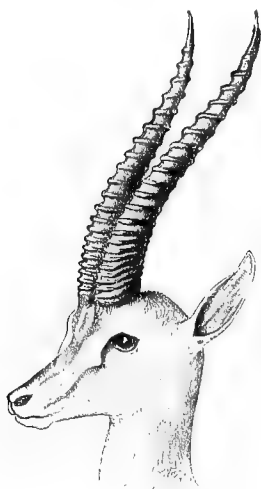
*Distribution.*—Senegal and Gambia.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
10½	4½	6¾	Senegal . . .	Sir Victor Brooke's Collection.
♀ 6¼	2½	2¾	Do. . . .	British Museum.



Horns and Ears of Female Thomson's Gazelle.





Head of Male Thomson's Gazelle

**THOMSON'S GAZELLE** (*Gazella thomsoni*).Swahili name, *Swallah*.

The distinct black nose-patch and the great width of the black flank-band serve at once to distinguish this handsome species from *G. rufifrons*, with which it agrees in the general form of the horns. The general colour of the upper parts is deep sandy rufous, with all the markings well developed and sharply defined; the central face-streak being a deeper rufous, and the light lateral band present, although only slightly paler than the back. There is also a narrow black band bordering the white on the sides of the rump; and knee-tufts are developed. The horns are long, and rather like those of the Indian gazelle on an enlarged scale. Height at shoulder about 25 inches.

*Distribution*.—The interior districts of British and German East Africa, from Lake Rudolph southwards to Irangi. Discovered by Joseph Thomson during his expedition to the Victoria Nyanza in 1883-84, and named by Dr. Günther in the latter year.

Measurements of 4 males and 1 female shot by F. J. Jackson, C.B.

	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
Length	3	10	4	1	3	11½	4	4	3	8½
Height	2	1	2	3	2	1½	2	2	1	11½
Weight	52	lbs.	54	lbs.	56	lbs.	62	lbs.	32	lbs.

THOMSON'S GAZELLE (*Gazella thomsoni*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
15½	4¾	3¾	Masailand	F. J. Jackson, C.B.
15½	4½	8½	Do.	E. Gedge.
15¼	4¾	4¾	Do.	F. J. Jackson, C.B., British Museum
15¼	4½	4½	East Africa	Major A. E. Smith.
15½	4¾	5¾	Do.	Lord Basil Blackwood.
-14¾	3¾	3¾	Do.	Julius Jeppe.
14¾	4½	4½	Do.	Col. Trevor Ternan.
14¾	4¾	4½	Do.	Lord Delamere.
14½	4	3¾	Do.	Sir Edmund G. Loder, Bart.
-14½	4½	2½	Do.	Count Scheibler.
-14½	4¾	5¾	Do.	T. E. Buckley.
14½	4½	4¾	Masailand	J. Gardiner Muir.
14¾	4½	3½	East Africa	Sir Robert Harvey, Bart.
14¼	4¼	5¾	Masailand	H. C. V. Hunter, British Museum.
14¼	4½	5	East Africa	Col. Trevor Ternan.
14	4½	4¾	Do.	Henry Charrington.
14	4¼	3	Do.	S. L. Hinde.
13¾	4½	4¾	Do.	Col. F. D. Lugard, C.B., D.S.O.
-13¾	4¾	3¾	Do.	Mr. Justice Hopley.
13½	4½	5	Lake Naivasha	J. Ponsonby.
13¾	4¾	4¼	Do.	Sir Robert Harvey, Bart.
13¾	4½	5¾	Do.	Hon. Walter Rothschild.
-13¼	3¾	7½	East Africa	Julius Jeppe.
-13¼	3½	5½	Do.	A. Ohlsson.
13¼	4¾	4¾	Lorogi District	A. H. Neumann.
13¼	4	5	East Africa	E. J. L. Berkeley.
13¾	4¾	5½	Do.	Capt. J. W. Pringle.
13	4½	4	Do.	W. Astor Chanler.
13	4½	6	Do.	J. Gardiner Muir.
13	4¾	4½	Do.	G. E. Smith.
-12·12	4	3·13	Do.	Prince Henry of Liechtenstein.
9 5½	1¾	3½	Lake Naivasha	F. J. Jackson, C.B.



Skulls and Horns of Grant's Gazelle (male and female), from A. H. Neumann's specimens.

#### GRANT'S GAZELLE (*Gazella granti*).

With this handsome species we reach the last group of the genus *Gazella*, which includes species, for the most part of large size, characterised by the fawn colour of the back being invaded to a greater or less degree by the white of the rump. In the present animal the fawn of the back is cut off from the tail, which is included in the white rump-patch, and there is a dark streak on the hinder border of each side of this patch. On the neck and back the hair has a peculiar wavy appearance recalling that of watered silk. Height at shoulder about 38 inches; weight of male from 150 to 170 lbs., when cleaned about 115 lbs.

*Distribution*.—East Africa, throughout Masailand, and round Kilimanjaro, north of Baringo, and around Mount Elgon and the Suk country; generally on open grass-lands. Two well-defined local races of this species may be recognised. First, the typical race (*G. granti typica*), of the interior of East Africa, in which the dark

flank-bands are either wanting, or are present in young specimens below the light flank-band. Secondly, the northern race (*G. granti notata*), of Northern British East Africa, in which dark bands are present both above and below the light band, behind which they unite with each other. Although described by O. Thomas in 1897 as a local race, the latter form was raised by him to the rank of a distinct species in the following year.

F. J. Jackson says they are found "throughout the Masai country, up in Turkwel and Suk country. Those from Njemps, Turkwel and Suk are smaller than those from Kilimanjaro, Naivasha, Athi plains, etc. In the Njemp district a 20-inch head is good."

Measurements of 4 male specimens shot by the last-named sportsman.

	ft.	in.	ft.	in.	ft.	in.	ft.	in.
Length . . .	5	8	5	7	5	7	5	3 <sup>1</sup>
Height	3	1 $\frac{1}{2}$	3	2 $\frac{1}{2}$	3	6 $\frac{1}{2}$	2	11
Horns . . .		28 $\frac{1}{4}$		27		24		20
Weight . . .		158 lbs.		167 lbs.		166 lbs.		135 lbs.
Habitat . . .	Lake Naivasha, Lake Naivasha, Lake Naivasha, Njemp.							

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
28 $\frac{1}{4}$	6 $\frac{5}{8}$	15 $\frac{1}{8}$	East Africa . . .	F. J. Jackson, C.B.
27 $\frac{7}{8}$	6 $\frac{5}{8}$	18 $\frac{3}{8}$	Do. . . . .	H. C. V. Hunter.
27 $\frac{1}{2}$	6 $\frac{1}{2}$	16	Do. . . . .	F. J. Jackson, C.B.
27 $\frac{1}{4}$	6 $\frac{1}{2}$	18 $\frac{7}{8}$	Do. . . . .	Sir Robert Harvey, Bart.
27	...	16	Do. . . . .	Sir John Willoughby, Bart.
26 $\frac{3}{4}$	6 $\frac{1}{2}$	13 $\frac{1}{2}$	Shores of Lake Naivasha . .	A. H. Neumann.
26 $\frac{1}{2}$	7 $\frac{1}{4}$	18	East Africa . . .	Major A. E. Smith.
26 $\frac{1}{4}$	6 $\frac{3}{8}$	16 $\frac{3}{4}$	Do. . . . .	Sir Victor Brooke's Collection.
26	6 $\frac{1}{2}$	10 $\frac{3}{4}$	N.E. of Lake Rudolph . . .	A. H. Neumann.
25 $\frac{3}{4}$	6 $\frac{3}{4}$	15	E. Africa . . . . .	Lord Delamere.
25 $\frac{3}{4}$	6	17	Do. . . . .	J. Gardiner Muir.
25 $\frac{1}{2}$	6 $\frac{1}{4}$	15	Do. . . . .	Lord Delamere.

<sup>1</sup> This was the old buck of a herd in which there were three or four other bucks. It was in good condition. I saw a lot of other bucks, but none had horns more than 20 inches.

GRANT'S GAZELLE (*Gazella granti*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
25 $\frac{1}{8}$	6 $\frac{1}{2}$	15 $\frac{3}{8}$	E. Africa . . .	Capt. R. A. J. Montgomerie, C.B., R.N.
-25.11	6.8	13.14	Do. . . .	Prince Henry of Liechtenstein.
-25.10	6.1	15.14	Do. . . .	Do.
25	6 $\frac{5}{8}$	12 $\frac{3}{4}$	Nakuru Lake, E. Africa .	G. E. Smith.
25	6 $\frac{1}{2}$	14	Kilimanjaro . . .	T. W. Greenfield.
24 $\frac{3}{4}$	6 $\frac{3}{4}$	12 $\frac{1}{2}$	East Africa . . .	S. L. Hinde.
24.13	6.14	14.10	Do. . . .	Prince Henry of Liechtenstein.
24 $\frac{1}{2}$	6 $\frac{3}{4}$	13 $\frac{1}{2}$	Do. . . .	E. J. L. Berkeley.
24 $\frac{1}{2}$	7 $\frac{3}{8}$	14	Do. . . .	Sir Edmund G. Loder, Bart.
24 $\frac{1}{4}$	6 $\frac{1}{2}$	11 $\frac{3}{4}$	N.E. of Lake Rudolph .	Hon. Walter Rothschild.
24	7 $\frac{1}{4}$	8 $\frac{1}{4}$	East Africa . . .	Henry Charrington.
23 $\frac{1}{4}$	6 $\frac{5}{8}$	13 $\frac{5}{8}$	Do. . . .	Capt. E. J. Tickell.
23 $\frac{1}{4}$	6 $\frac{1}{2}$	13	Do. . . .	Major W. H. Williams.
23	6 $\frac{1}{2}$	13 $\frac{3}{8}$	Do. . . .	Col. F. D. Lugard, C.B., D.S.O.
23	7 $\frac{1}{4}$	9	Do. . . .	E. Gedge.
-23	6 $\frac{1}{4}$	9 $\frac{1}{2}$	Do. . . .	Julius Jeppe.
♀ 17 $\frac{1}{2}$	3 $\frac{3}{4}$	9	Do. . . .	H. C. V. Hunter.
♀ 17	...	6	Lake Jipé . . .	Sir John Willoughby, Bart.
♀ 16 $\frac{1}{2}$	3 $\frac{1}{2}$	4 $\frac{5}{8}$	E. Africa . . .	Lord Delamere.
♀ 15	4	6 $\frac{3}{4}$	Do. . . .	E. Gedge.



Skulls and Horns of Peters's Gazelle (male and female),  
from A. H. Neumann's specimens.

### PETERS'S GAZELLE (*Gazella petersi*).

This species belongs to the same group as Grant's gazelle and the aoul, showing the same extension of the white of the rump on to the back. It has a dark band separating the white of the rump from the fawn of the back, and differs from the other species showing the same feature by the fawn colour of the back being continued in the middle line on to the base of the tail, which is otherwise black. Height at shoulder about 26 inches.

*Distribution.*—Coast districts of East Africa.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
22 $\frac{1}{8}$	6 $\frac{3}{8}$	5 $\frac{7}{8}$	Shererini . . . .	F. J. Jackson, C.B., British Museum.
21 $\frac{3}{4}$	5 $\frac{1}{2}$	8 $\frac{1}{4}$	Pica Pica, E.E.A. . . .	L. E. Caine, British Museum.
20 $\frac{1}{4}$	6 $\frac{1}{8}$	8 $\frac{3}{8}$	Ndura . . . .	C. Steuart Betton.
19	6	5 $\frac{1}{4}$	Taru Desert . . . .	Lieut. G. H. Welch, R.N.
17 $\frac{3}{4}$	5 $\frac{1}{4}$	7 $\frac{5}{8}$	Near Pica Pica . . . .	A. H. Neumann.
♀ 10 $\frac{5}{8}$	3	4 $\frac{1}{4}$	Do. . . .	Do.



Head of Scemmerring's Gazelle, from a specimen shot by G. H. Cheetham.

**SCHEMMERRING'S GAZELLE** (*Gazella scemmerringi*).

Somali name, *Aoul*.

Abyssinian name, *Meidafihel*.

Abyssinian (Danakil) name, *Ma'édodo*.

In addition to the forward extent of the white rump-patch, the leading characteristics of this splendid species are to be found in the absence of a black streak dividing the sides of the rump-patch from the fawn of the body, the black-tipped tail, and the very distinct inward hooking of the horns. The ears are long and bordered with black externally, and the face markings well-defined and nearly black. Height at shoulder about 30 to 36 inches. Weight clean about 70 to 90 lbs.

*Distribution.*—The Abyssinian coast of the Red Sea, Berber, East Sennar, Danakil, and Somaliland; in the latter country occurring all over the Haud and Ogaden.

*a. Gazella søemmerringi berberana.*

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
20 $\frac{3}{4}$	5 $\frac{3}{4}$	3 $\frac{5}{8}$	Somaliland	G. H. Cheetham.
-20 $\frac{1}{4}$	...	...	Do.	Norman B. Smith.
20	5 $\frac{3}{4}$	4	Do.	Lieut.-Col. J. W. H. Flanagan.
20	5 $\frac{1}{4}$	5 $\frac{1}{2}$	Danakil	Viscount Edmond de Poncins.
♀ -20	...	5 $\frac{3}{4}$	Somaliland	A. E. Pease.
-20	5 $\frac{7}{8}$	6 $\frac{1}{2}$	Do.	Capt. M. M'Neill.
19 $\frac{3}{4}$	5 $\frac{5}{8}$	5 $\frac{1}{4}$	Do.	Count J. de Bylands.
-19 $\frac{1}{2}$	5 $\frac{1}{8}$	5 $\frac{3}{8}$	The Haud	P. H. G. Powell-Cotton.
-19 $\frac{1}{2}$	...	...	N. Somaliland	J. Menges.
19 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{5}{8}$	Somaliland	T. W. H. Clarke.
19 $\frac{1}{2}$	5 $\frac{9}{10}$	2	Do.	Sir Edmund G. Loder, Bart.
19 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{3}{4}$	Do.	J. J. Richardson.
-19 $\frac{1}{2}$	6 $\frac{1}{4}$	3	Do.	S. Payne-Gallwey.
-19 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{5}{8}$	Do.	Count J. Potocki.
19 $\frac{1}{4}$	6 $\frac{1}{2}$	4 $\frac{3}{4}$	Do.	R. McD. Hawker.
19 $\frac{1}{4}$	5 $\frac{1}{2}$	6 $\frac{1}{2}$	Do.	T. W. H. Clarke.
19 $\frac{1}{4}$	5 $\frac{1}{4}$	4 $\frac{1}{2}$	Do.	Capt. B. L. Carew.
19 $\frac{1}{4}$	5 $\frac{1}{2}$	...	Do.	Surgeon-Major J. S. Edey.
19	5	4	Do.	Col. A. Paget.
19	5 $\frac{1}{4}$	4 $\frac{3}{4}$	Do.	J. Benett-Stanford.
19	5	7 $\frac{1}{2}$	Do.	B. R. M. Glossop.
19	5 $\frac{1}{2}$	5 $\frac{1}{2}$	Do.	Ford G. Barclay.
19	5	4	Do.	Capt. F. C. Quicke.
-19	4	3 $\frac{1}{4}$	Do.	Prince Nicolas Ghika.
-19	5 $\frac{3}{4}$	8	Do.	J. Brander Dunbar.
-19	...	4 $\frac{3}{4}$	Do.	J. D. Inverarity.
-19	5 $\frac{3}{4}$	5 $\frac{3}{8}$	Do.	Mr. Justice Hopley.



SCÈMMERRING'S GAZELLE (*Gazella scømmerringi berberana*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
18 $\frac{3}{4}$	5 $\frac{1}{2}$	6	Somaliland	F. H. Barber.
18 $\frac{5}{8}$	5 $\frac{1}{8}$	5 $\frac{1}{2}$	Do.	Capt. G. R. Cuninghām.
18 $\frac{1}{2}$	5 $\frac{1}{2}$	7 $\frac{5}{8}$	Do.	Capt. G. Campbell.
18 $\frac{1}{2}$	5 $\frac{1}{2}$	4 $\frac{1}{2}$	Do.	A. H. Straker.
18 $\frac{1}{2}$	5 $\frac{1}{2}$	5	Do.	P. B. Vander-Byl.
18 $\frac{1}{2}$	5	5 $\frac{3}{4}$	Do.	A. Leslie Renton.
18 $\frac{5}{8}$	5 $\frac{1}{8}$	5	Do.	Sir H. Tichborne, Bart.
-18 $\frac{5}{8}$	5	5 $\frac{1}{2}$	Do.	J. Johnston-Stewart.
♀ 18 $\frac{1}{4}$	...	6	Do.	T. W. H. Clarke.
18 $\frac{5}{8}$	5 $\frac{5}{8}$	4 $\frac{1}{2}$	Do.	W. D. James.
18	5 $\frac{1}{2}$	4 $\frac{3}{4}$	Do.	J. Kenneth Foster.
18	5	7 $\frac{3}{8}$	Do.	Major H. C. Morland.
18	5 $\frac{1}{2}$	4	Do.	T. W. Greenfield.
18	5 $\frac{1}{4}$	5 $\frac{3}{4}$	Do.	R. Wahrmann.
18	5	6 $\frac{1}{2}$	Do.	P. R. Denny.
-18	...	4 $\frac{1}{2}$	Do.	A. E. Pease.
18	5 $\frac{5}{8}$	7 $\frac{1}{4}$	Do.	W. W. Ashley.
♀ 18	3 $\frac{1}{2}$	8 $\frac{1}{2}$	Danakil	Viscount Edmond de Poncins.
17 $\frac{7}{8}$	5	5 $\frac{1}{2}$	Somaliland	W. W. Ashley.
-17 $\frac{3}{4}$	5 $\frac{1}{2}$	1 $\frac{5}{8}$	Do.	Count Scheibler.
17 $\frac{3}{4}$	5 $\frac{5}{8}$	4	Do.	Major C. C. Ellis.
-17 $\frac{3}{4}$	4 $\frac{7}{8}$	3 $\frac{1}{2}$	Do.	Julius Jeppe.
-17 $\frac{3}{4}$	6	...	Do.	C. V. A. Peel.
17 $\frac{5}{8}$	5	4 $\frac{7}{8}$	Do.	Prince Boris Czetwertynski.
-17 $\frac{5}{8}$	5	3 $\frac{3}{4}$	Do.	A. E. Leatham.
17 $\frac{1}{2}$	5 $\frac{1}{2}$	6	Do.	Capt. C. S. Timins.
17 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	Do.	J. Byng Paget.
17 $\frac{1}{2}$	5 $\frac{1}{4}$	6 $\frac{3}{4}$	Do.	W. R. Bindloss.
17 $\frac{1}{2}$	5 $\frac{1}{4}$	7 $\frac{3}{4}$	Do.	Digby Davies.
-17 $\frac{1}{2}$	5 $\frac{3}{4}$	4 $\frac{3}{4}$	Do.	A. Ohlsson.

**SÆMMERRING'S GAZELLE (*Gazella sœmmerringi berberana*)—continued.**

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
17 $\frac{3}{8}$	6	4	Somaliland	Lord Wolverton.
-17 $\frac{3}{8}$	4 $\frac{5}{8}$	4 $\frac{3}{8}$	Do.	Count E. Hoyos.
-♀ 17 $\frac{1}{4}$	...	...	Danakil	Prince de Lucinge.
♀ 16 $\frac{3}{4}$	3 $\frac{1}{2}$	6 $\frac{1}{4}$	Somaliland	H. R. H. le Duc d'Orléans.
♀ 16	3 $\frac{1}{8}$	6	Do.	Major H. G. C. Swayne.
♀ 16	3 $\frac{1}{4}$	10 $\frac{1}{2}$	Do.	R. Wahrmann.
<b>b. <i>Gazella sœmmerringi typica</i>.</b>				
15 $\frac{1}{2}$	5 $\frac{3}{8}$	5	Sudan	Col. Ralph Vivian.
♀ 15 $\frac{1}{4}$	2 $\frac{7}{8}$	7 $\frac{3}{8}$	Do.	Lieut.-Col. Hon. W. Coke.
14 $\frac{3}{4}$	5 $\frac{1}{2}$	4 $\frac{1}{4}$	Near Suakin	B. Cotton.
14 $\frac{1}{2}$	5 $\frac{1}{8}$	5 $\frac{1}{2}$	Eastern Sudan	Major W. H. Besant.
14	5 $\frac{1}{8}$	5 $\frac{3}{4}$	Sudan	Lieut.-Col. Hon. W. Coke.
14	5 $\frac{1}{2}$	5 $\frac{1}{2}$	Do.	Col. A. Paget.
-14	5.12	3.13	?	Prince Henry of Liechtenstein.
-14	5.2	3.1	?	Do.
13 $\frac{3}{4}$	5 $\frac{1}{2}$	6	Sudan	W. D. James.
13 $\frac{1}{2}$	5 $\frac{1}{2}$	4	Do.	Sir Victor Brooke's Collection.
13 $\frac{1}{2}$	5 $\frac{3}{8}$	5 $\frac{5}{8}$	Suakin	Hon. Walter Rothschild.
12 $\frac{3}{4}$	5	5	Abyssinia	Sir Edmund G. Loder, Bart.
♀ 12 $\frac{5}{8}$	3 $\frac{1}{2}$	8 $\frac{1}{4}$	Sudan	Col. Ralph Vivian.
♀ 12	3 $\frac{1}{4}$	5 $\frac{1}{8}$	Abyssinia	Sir Victor Brooke's Collection.
♀ 8 $\frac{1}{2}$	3 $\frac{1}{4}$	5	Sudan	Hon. Walter Rothschild.

**ADDRA GAZELLE (*Gazella ruficollis*).**

The last three representatives of the genus *Gazella* are not only the largest of the tribe, but are distinguished from all their relatives by the white of the rump extending on to the tail (which is either wholly white or merely tipped with fawn) coupled with the complete absence of a black band between the white of the rump-patch and the fawn of the body; the horns being hooked upwards and forwards, and not

distinctly inwards. In the present species, which measures about 36 inches at the shoulder, the neck and front portion of the back alone display a distinctly rufous tint, the lines of division between the fawn of the upper parts and the white beneath being obscure.

*Distribution.*—Kordofan and Sennar.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
12 $\frac{1}{4}$	4	5 $\frac{5}{8}$	Sennar	British Museum.
11 $\frac{7}{8}$	5 $\frac{5}{8}$	$\frac{5}{8}$	Kordofan	Do.

### DAMA GAZELLE (*Gazella dama*).

Together with its northern representative the mhorr of Morocco, the dama differs from the aoul by the rufous tint extending completely over the body and flanks, and being well defined from the white of the under parts. In the present form, which is from Senegal, the sides of the thighs are white, so that the rufous of the body is cut off from that of the hind-legs. The height is at least 35 inches.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
12 $\frac{5}{8}$	5 $\frac{1}{8}$	5 $\frac{1}{2}$	?	Paris Museum.
12 $\frac{1}{2}$	5 $\frac{1}{2}$	6	?	Mr. Justice Hopley.
12 $\frac{1}{4}$	5 $\frac{1}{8}$	3 $\frac{0}{10}$	Senegambia	Paris Museum.
8 $\frac{1}{2}$	3 $\frac{1}{2}$	5 $\frac{3}{8}$	?	Hon. Walter Rothschild.

### MHORR or SWIFT GAZELLE (*Gazella dama mhorr*).

Although commonly regarded as a distinct species, this fine but somewhat leggy gazelle seems to be only a northern race of the dama gazelle of Senegal, which is the largest member of the genus. The mhorr, as it is called by the Arabs, differs from the dama by the sides of the thighs and legs being of the same rufous hue as the body, instead of white. Height at shoulder at least 34 $\frac{1}{2}$  inches.

*Distribution.*—The desert districts of South-West Morocco.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
11 $\frac{3}{4}$	6	3 $\frac{3}{4}$	Wednoon, Mogador	W. Willshire, British Museum.
4 $\frac{1}{10}$	3 $\frac{1}{10}$	2 $\frac{1}{2}$	Morocco	Dr. Percy Rendall.



Skull and Horns of Dibatag, from a specimen shot by T. W. H. Clarke in Somaliland.

**DIBATAG or CLARKE'S GAZELLE (*Ammodorcas clarkei*).**

Although resembling the true gazelles in the face-markings, the dibatag, as it is called by the Somalis, is so different from these animals as to be entitled to constitute a genus by itself; being in many respects intermediate between the former and the gerenuk. The horns, which are present only in the males, are rather short, and have a regular upward and forward curvature, somewhat like those of a reed-buck; they are ridged on the front for a considerable portion of their length. The neck is considerably elongated, and the tail long and thin. The general colour of the upper parts is a deep cinnamon. Height at shoulder about 33 inches; weight from 65 to 70 lbs. When running, the long neck is thrown back towards the tail, which is elevated, so that the two look as though they would touch. Discovered by T. W. H. Clarke.

*Distribution.*—Central Somaliland, in the eastern districts of the Haud.

DIBATAG or CLARKE'S GAZELLE (*Ammodorcas clarkei*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-13	...	...	Somaliland	J. D. Inverarity.
-13	...	...	Do.	J. Menges.
12 $\frac{5}{8}$	5 $\frac{1}{4}$	4 $\frac{5}{8}$	Do.	Hon. Walter Rothschild.
11 $\frac{3}{4}$	4 $\frac{7}{8}$	3 $\frac{5}{8}$	Do.	Col. Arthur Paget.
11 $\frac{3}{4}$	4 $\frac{3}{4}$	3 $\frac{5}{8}$	Do.	T. W. H. Clarke.
-11 $\frac{3}{4}$	4 $\frac{1}{4}$	5	Do.	J. Brander Dunbar.
11 $\frac{1}{4}$	4 $\frac{1}{4}$	6	Do.	R. McD. Hawker.
11	4 $\frac{1}{2}$	5 $\frac{1}{8}$	Do.	Capt. F. C. Quicke.
11	5 $\frac{1}{2}$	2 $\frac{1}{4}$	Do.	B. R. M. Glossop.
11	5	5 $\frac{1}{2}$	Do.	S. Payne-Gallwey.
10 $\frac{3}{4}$	4 $\frac{1}{4}$	4 $\frac{3}{4}$	Do.	Mr. Justice Hopley.
-10 $\frac{3}{4}$	5 $\frac{1}{2}$	4	Do.	Sir Edmund G. Loder, Bart.
-10 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	Do.	A. E. Pease.
-10 $\frac{1}{4}$	4 $\frac{1}{4}$	4 $\frac{7}{8}$	Eidegalla, Haud	J. Johnston-Stewart.
-10 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	Somaliland	C. V. A. Peel.
-10 $\frac{1}{8}$	4 $\frac{1}{4}$	4 $\frac{7}{8}$	Somaliland	Rowland Ward.
10 $\frac{1}{8}$	4 $\frac{1}{8}$	4 $\frac{1}{2}$	West of Hargeisa	P. H. G. Powell-Cotton.
-10	4 $\frac{1}{2}$	4 $\frac{1}{2}$	Somaliland	C. V. A. Peel.
10	4 $\frac{1}{2}$	4	Do.	Count J. de Bylands.
-10	4 $\frac{1}{4}$	4 $\frac{1}{8}$	?	Julius Jeppe.
9 $\frac{3}{4}$	4 $\frac{1}{2}$	5 $\frac{1}{8}$	Somaliland	T. W. H. Clarke, British Museum.
9 $\frac{3}{4}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	Do.	Major H. G. C. Swayne.
9 $\frac{1}{2}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	Do.	B. Vincent.
-9 $\frac{5}{16}$	4 $\frac{1}{8}$	4 $\frac{1}{16}$	Dalbahanta Country	Dr. Percy Rendall.
-9 $\frac{1}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	?	A. Ohlsson.
9	3 $\frac{1}{2}$	3 $\frac{3}{8}$	Dalbahanta Country	A. S. Trevor.
9	4 $\frac{1}{2}$	4 $\frac{5}{8}$	Do.	Lord Delamere.
8 $\frac{3}{8}$	4 $\frac{5}{8}$	4 $\frac{1}{2}$	Do.	W. H. Cobb.
8 $\frac{5}{8}$	4	4 $\frac{3}{4}$	Do.	T. W. Greenfield.

**DIBATAG or CLARKE'S GAZELLE (*Ammodorcas clarkei*)—continued.**

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
$8\frac{1}{2}$	4	3	Dalbahanta Country	Count Grudzinski.
8	4	$3\frac{5}{8}$	Do. . . .	H.R.H. le Duc d'Orléans.
$7\frac{3}{4}$	4	$4\frac{1}{2}$	Do. . . .	Ford G. Barclay.



Head of Male Dibatag.



Head of Male Gerenuk, from a specimen shot by H. R. H. le Duc d'Orléans.

**GERENUK or WALLER'S GAZELLE** (*Lithocranius walleri*).

Somali name, *Gerenuk*.      Danakil name, *Gudan Godu*.

Even more aberrant than the last is the gerenuk, in which the elongation of the neck attains its supreme development, while the slender legs are lengthened in proportion. Horns are wanting in the females, and those of the males curve forwards at the tips, where the ridges stop, in a peculiarly characteristic manner. The general colour of the upper parts is a deep rufous fawn, but down the middle of the back runs a broad dark-brown band, nearly eight inches in width. The skull is characterised by its dense and solid structure, as well as by its straightness, the shortness of the facial portion, and the very small size of the cheek-teeth. Height at shoulder, 41 inches; weight, 115 lbs. (T. W. H. Clarke).

This curious antelope, which was first described by the late Sir V.

Brooke on the evidence of a flat skin, is reported to rear itself on its hind-legs when browsing, and is thus enabled to reach boughs at a very considerable distance above the ground.

The horns of the specimens from Somaliland are, as a rule, very much longer than those from British East Africa, as will be seen by reference to the list below.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
17	5 $\frac{1}{4}$	3 $\frac{3}{4}$	Somaliland	H.R.H. le Duc d'Orléans. (See illustration.)
-16 $\frac{3}{4}$	...	...	Do.	Lieut.-Col. H. G. Mainwaring.
-16 $\frac{1}{2}$	5 $\frac{3}{4}$	3 $\frac{5}{8}$	Do.	E. L. Cappel.
16 $\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{5}{8}$	Do.	Mr. Justice Hopley.
-16 $\frac{1}{4}$	5 $\frac{1}{2}$	2 $\frac{7}{8}$	Do.	The late J. Rose.
-16 $\frac{1}{8}$	...	...	Northern Somaliland	J. Menges.
16	5 $\frac{3}{4}$	6	Do.	Sir Edmund G. Loder, Bart.
15 $\frac{3}{4}$	6	4 $\frac{3}{4}$	Do.	Rowland Ward.
-15 $\frac{3}{4}$	6	2 $\frac{3}{4}$	Do.	A. E. Pease.
15 $\frac{1}{2}$	5 $\frac{1}{2}$	3	Do.	J. Kenneth Foster.
-15 $\frac{1}{2}$	5 $\frac{7}{8}$	4 $\frac{7}{8}$	Do.	F. H. Barber.
15 $\frac{3}{8}$	5 $\frac{5}{8}$	4	Do.	Major H. G. C. Swayne.
15 $\frac{3}{8}$	5 $\frac{3}{8}$	4 $\frac{1}{8}$	Do.	C. Liddell.
15 $\frac{3}{8}$	5 $\frac{3}{8}$	4 $\frac{3}{4}$	Do.	Lord Wolverton.
-15 $\frac{1}{4}$	5 $\frac{1}{2}$	1 $\frac{5}{8}$	Do.	J. Johnston-Stewart.
15	5 $\frac{3}{8}$	6 $\frac{3}{8}$	Do.	F. G. Gunnis.
15	5	4 $\frac{3}{4}$	Do.	Capt. J. M'Call Maxwell.
-15	6	...	Do.	Lieut.-Col. J. W. H. Flanagan.
-15	5	4	Do.	Sir H. B. Meux, Bart.
-14 $\frac{1}{2}$	5 $\frac{1}{2}$	7 $\frac{1}{4}$	Do.	H.R.H. le Duc d'Orléans, Paris Museum.
14 $\frac{3}{4}$	5 $\frac{1}{8}$	4 $\frac{3}{4}$	Do.	Lord Delamere.
14 $\frac{3}{4}$	5 $\frac{1}{4}$	3 $\frac{3}{4}$	Do.	J. J. Richardson.
14 $\frac{1}{2}$	5	5	Do.	Count J. de Bylands.
-14 $\frac{1}{2}$	5 $\frac{1}{4}$	7 $\frac{1}{8}$	Do.	Count Scheibler.
-14 $\frac{1}{2}$	4 $\frac{3}{4}$	4	Do.	Count E. Hoyos.
14 $\frac{3}{8}$	6 $\frac{1}{2}$	4 $\frac{1}{2}$	Do.	Capt. F. C. Quicke.



GERENUK or WALLER'S GAZELLE (*Lithocranius walleri*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
14 $\frac{1}{4}$	5 $\frac{3}{4}$	4 $\frac{1}{2}$	Northern Somaliland	A. Leslie Renton.
14 $\frac{1}{4}$	5 $\frac{1}{4}$	3 $\frac{1}{2}$	Do.	W. W. Ashley.
14	...	3	East Africa	Sir John Willoughby, Bart.
14	6 $\frac{3}{4}$	4 $\frac{1}{2}$	Somaliland	W. H. Cobb.
14	5	3 $\frac{1}{8}$	Do.	Col. A. Paget.
14	5 $\frac{3}{4}$	6 $\frac{1}{4}$	Do.	P. B. Vander-Byl.
14	5 $\frac{1}{2}$	4 $\frac{3}{4}$	Do.	Ford G. Barclay.
14	5 $\frac{1}{4}$	5 $\frac{1}{2}$	Do.	Viscount Edmond de Poncins.
-14	6	5	Do.	S. Payne-Gallwey.
-14	5 $\frac{1}{4}$	4	Do.	P. H. G. Powell-Cotton.
-14	5 $\frac{1}{2}$	3 $\frac{3}{4}$	Do.	J. D. Inverarity.
13 $\frac{7}{8}$	4 $\frac{5}{8}$	5 $\frac{1}{8}$	East Africa	H. C. V. Hunter.
13 $\frac{3}{4}$	4 $\frac{7}{8}$	4 $\frac{1}{8}$	Do.	E. Lort-Phillips.
13 $\frac{3}{4}$	5 $\frac{5}{8}$	2 $\frac{7}{8}$	Northern Somaliland	J. Menges, British Museum.
13 $\frac{3}{4}$	5 $\frac{3}{8}$	3 $\frac{7}{8}$	Somaliland	Hon. Walter Rothschild.
13 $\frac{3}{4}$	5 $\frac{1}{2}$	3	Do.	Capt. G. F. T. Leather.
13 $\frac{3}{4}$	5 $\frac{1}{4}$	5	Do.	Digby Davies.
-13 $\frac{3}{4}$	5 $\frac{1}{4}$	7 $\frac{1}{2}$	Do.	C. V. A. Peel.
-13 $\frac{3}{4}$	5 $\frac{5}{8}$	5	Do.	J. Johnston-Stewart.
-13 $\frac{5}{8}$	5 $\frac{3}{4}$	5 $\frac{5}{8}$	East Africa	T. E. Buckley.
12 $\frac{1}{2}$	5 $\frac{3}{8}$	4 $\frac{3}{4}$	Do.	F. J. Jackson, C.B.



Skulls of Beira, from specimens shot by Lord Delamere.

**BEIRA (*Dorcatragus melanotis*).**

In spite of its presenting a certain superficial resemblance to the members of the oribi group and its allies, this peculiar little antelope is considered to be best placed in the neighbourhood of the gazelles. From all the members of the group in which the latter are included, the beira is at once distinguished by the short and spike-like horns of the bucks. Perhaps its most striking peculiarity is the great size of its ears, which led its discoverer, Herr Menges, to describe it as a species of klipspringer. Another noticeable feature is the large size of the rounded hoofs. In colour, the upper parts and legs are pinkish fawn; a darker band defining the fawn from the white of the under parts, which (the white) is continued down the inner surfaces of the limbs as far as the knees and hocks. The head, from the ears to the nose, is bright rufous. Height at shoulder about 23 inches.

Viscount Edmond de Poncins writes that "they are good hill-climbers, and keep on rocky ground. The general shape is slender, legs are long, the head is kept erect, the ears are very big and broad, shaped like the dik-dik's, eyes big and dark, nostrils black.

"Colour a sort of grayish blue, a bit like what we call in French *gorge de pigeon*, and exactly matching the colour of the ground, so, unless they are on the move, it is difficult to distinguish them. Unlike a gazelle, its tail is generally kept down. Horns resemble those of the klipspringer, but curve forward slightly more." From nose to root of tail  $32\frac{5}{16}$ , height at shoulder 21 inches, horns 4 inches; weight about 20 lbs.

*Distribution.*—The interior of Somaliland, where it appears to be rare and local, going about either singly or in pairs, and inhabiting the open desert. The beira was first made known to science in 1894: its habits have lately been well described by Captain P. Z. Cox in the eleventh volume of the *Journal* of the Bombay Natural History Society.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$4\frac{1}{2}^1$	$1\frac{7}{8}$	...	?	Lord Delamere. (See illustration.)
$4\frac{3}{4}$	...	...	Northern Somaliland	J. Menges.
4	2	$2\frac{1}{10}$	French Somaliland	Viscount Edmond de Poncins.
4	$2\frac{1}{8}$	$2\frac{3}{4}$	Somaliland	Sir Edmund G. Loder, Bart.
$3\frac{7}{8}$	$1\frac{3}{4}$	$3\frac{1}{2}$	?	Lord Delamere.
$3\frac{3}{4}$	$1\frac{5}{8}$	...	French Somaliland	Viscount Edmond de Poncins.
$3\frac{1}{2}$	$1\frac{1}{10}$	$2\frac{1}{4}$	?	Lord Delamere.
$2\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{1}{2}$	French Somaliland	Viscount Edmond de Poncins.

<sup>1</sup> Length straight  $32\frac{3}{4}$  inches, along curves  $35\frac{1}{4}$  inches; height at shoulder,  $25\frac{1}{4}$  inches; girth,  $19\frac{1}{4}$  inches; weight, 23 lbs. as he fell.



Head of Grant's Gazelle.



Skull and Horns of Sable Antelope, from R. T. Coryndon's specimen.

**SABLE ANTELOPE (*Hippotragus niger*).**

*Impengo* of the Masubias.

*Impalampala* of the Swazis and  
Zulus.

*Ookwa* of the Makubas.

*Potoquane* of the Southern  
Bechuanas.

*Pala-hala* of the Swahilis.

*Pala-pala* of the Makalakas.

*Nkwalandi* in the Chilala and Chibisa countries.

*Qualata inchu* of the Bamangwatos  
and Makololos.

*Solupe* of the Masaras.

*Utjiele* of the Amandebele.

*Qualata* and *T'choo* in the Barotse  
country.

*Qualata* and *Tshumu* in the Lake  
Ngami country.

The group of antelopes which includes the present species, the roan antelope, the gemsbuck, addax, etc., differs very markedly from all those before mentioned. Among the leading features are the scimitar-shaped, conical, or spiral horns, which are placed just over the eyes, and are present in both sexes, the hairy muzzle, the absence of face-glands, and the long, tufted tail. Even more remarkable are the upper molar teeth, which have square grinding-surfaces and tall crowns, like those of oxen.

From the other members of the group the beautiful sable antelope and its near ally the roan antelope are well distinguished by the

scimitar-shaped horns, which arise at an angle with the plane of the face, as well as by the maned neck, the tufts of long hair below the eyes, and the large size of the ears. By far the handsomer of the two is the present species, whose sable coat and great length of horn render the buck the most striking of its tribe. Other distinctive features are the continuance of the white eye-stripe to the muzzle, the length of the mane, and the relatively moderate size of the ears. Height at shoulder about  $4\frac{1}{2}$  feet. A single horn in the Florence Museum measured by Mr. F. C. Selous is 61 inches on the front curve.

*Distribution.*—From about the centre of the Transvaal northwards to Nyasaland and the adjacent districts of South-East and East Africa. Still abundant in parts of Eastern Mashonaland, and thence towards the coast, as well as on the Manica plateau to the north of the Zambesi. Scarcer in Central East Africa and Mozambique. Admired by all who have seen it in its native haunts, the sable antelope when wounded is a dangerous antagonist, to be approached with extreme caution. It runs with considerable speed, and possesses much staying power.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-47 $\frac{7}{8}$	...	...	Rhodesia . . . .	Measured by F. C. Selous (Fielden's specimen).
47 $\frac{1}{4}$	9 $\frac{3}{4}$	26 $\frac{1}{2}$	?	R. T. Coryndon. (See illustration.)
-46	...	...	Eastern Border of Transvaal	W. Russell Bowker.
45 $\frac{1}{2}$	9 $\frac{1}{4}$	15 $\frac{1}{2}$	Mashonaland . . . .	Major G. A. L. Carew, D.S.O.
45 $\frac{3}{4}$	10	14 $\frac{3}{4}$	Lebombo Mountains . .	F. Vaughan Kirby.
45 $\frac{1}{4}$	9 $\frac{1}{2}$	12 $\frac{1}{4}$	S.E. Mashonaland . . .	J. G. Millais.
-45 $\frac{1}{2}$	...	12 $\frac{1}{4}$	Pandamatenka . . . .	R. T. Coryndon.
-45 $\frac{1}{4}$	9 $\frac{1}{2}$	20 $\frac{1}{2}$	?	Mr. Justice Hopley.
-45	...	...	Batoka Country . . . .	R. T. Coryndon.
-45	10 $\frac{1}{2}$	...	South Africa . . . .	Earl of Dartmouth.
-45	...	...	Angwa River . . . .	Capt. J. A. Spreckley.
44 $\frac{3}{4}$	10 $\frac{3}{8}$	13 $\frac{1}{2}$	Barotseland . . . .	H. Timmins.
44 $\frac{1}{2}$	9 $\frac{1}{4}$	16	?	R. T. Coryndon.
44 $\frac{1}{2}$	9	17	Transvaal . . . .	J. P. Fitzpatrick.
-44 $\frac{1}{2}$	...	...	?	H. T. and A. H. A. Glynn.
-44 $\frac{1}{2}$	(single horn)		Batoka Country . . . .	F. V. Worthington.

**SABLE ANTELOPE (*Hippotragus niger*)—continued.**

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
44 $\frac{3}{8}$	9 $\frac{1}{2}$	14	Eastern Transvaal . .	F. Vaughan Kirby.
44 $\frac{1}{8}$	9 $\frac{1}{2}$	8 $\frac{1}{4}$	Eastern Mashonaland .	F. C. Selous.
-44	...	...	Batoka Country . .	F. V. Worthington.
-44	...	...	Lydenburg . . .	F. H. Barber.
-44	10	32 $\frac{1}{2}$	?	Berlin Museum.
-43 $\frac{3}{4}$	9 $\frac{7}{8}$	8	Matabeleland . . .	Count E. Hoyos.
43 $\frac{1}{2}$	9 $\frac{1}{2}$	9 $\frac{1}{2}$	?	Sir Edmund G. Loder, Bart.
43 $\frac{1}{2}$	9 $\frac{3}{4}$	15	Matabeleland . . .	The late J. S. Jameson.
43 $\frac{1}{4}$	9 $\frac{1}{2}$	10 $\frac{1}{2}$	Mashonaland . .	S. Chillingworth.
43	10 $\frac{3}{8}$	16 $\frac{1}{8}$	Chobe Valley . . .	F. C. Selous.
43	9 $\frac{3}{4}$	6 $\frac{1}{2}$	Do. . .	F. C. Selous, British Museum.
43	...	...	Do. . .	Major Hon. R. T. Lawley.
43	10 $\frac{1}{4}$	13	Mashonaland . . .	Major H. J. Goold-Adams, C.B., C.M.G.
42 $\frac{7}{8}$	9 $\frac{3}{4}$	4 $\frac{7}{8}$	Eastern Transvaal . .	F. Vaughan Kirby.
42 $\frac{3}{4}$	9 $\frac{3}{8}$	12 $\frac{1}{2}$	Mashonaland . . .	J. A. Jameson.
42 $\frac{5}{8}$	9 $\frac{7}{8}$	9 $\frac{1}{2}$	South Africa . . .	Bethnal Green Museum
42 $\frac{1}{2}$	9 $\frac{3}{4}$	6	Mashonaland . . .	G. H. M. Banks.
-42 $\frac{1}{2}$	...	...	?	Cape Town Museum.
42 $\frac{1}{2}$	9 $\frac{1}{2}$	5	Rhodesia . . .	W. W. Ashley.
-42	10	3 $\frac{1}{2}$	South Africa . . .	Dublin Museum.
-42	...	...	Transvaal . . .	Cape Town Museum.
-42	...	...	S.E. Mashonaland . .	J. G. Millais.
41 $\frac{3}{4}$	9 $\frac{5}{8}$	12	Do. . .	A. Beit.
41 $\frac{3}{4}$	...	9 $\frac{1}{2}$	Do. . .	A. C. Fountaine.
41 $\frac{3}{4}$	9 $\frac{1}{2}$	9	Muchinga Plateau, Northern Rhodesia	F. Smitheman.
41 $\frac{1}{2}$	9	5 $\frac{1}{4}$	Do. . .	C. D. Rudd.
41 $\frac{1}{2}$	9 $\frac{3}{4}$	16 $\frac{1}{2}$	?	Col. F. Rhodes, D.S.O.
41 $\frac{1}{4}$	10	12 $\frac{7}{8}$	S.E. Mashonaland . .	Hon. Walter Rothschild.
41 $\frac{1}{4}$	10 $\frac{3}{8}$	11 $\frac{1}{2}$	Sabi River . . .	Earl of Dunmore.

SABLE ANTELOPE (*Hippotragus niger*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
41 $\frac{1}{4}$	9	10 $\frac{1}{2}$	South Africa . . .	R. A. Cooper.
-41 $\frac{1}{4}$	8 $\frac{1}{2}$	17 $\frac{3}{4}$	Do. . . .	Julius Jeppe.
41	9 $\frac{1}{4}$	10 $\frac{3}{4}$	Matabeleland . . .	W. Van Ness.
41	10	12	Do. . . .	Hon. R. A. Ward.
41	9 $\frac{1}{2}$	12 $\frac{3}{4}$	Do. . . .	Capt. Sir K. Fraser, Bart.
41	9 $\frac{1}{2}$	12	Do. . . .	Major James Grant.
-41	9 $\frac{1}{4}$	9	Pungwe . . . .	James J. Harrison.
40 $\frac{1}{2}$	8	13	N.E. Transvaal . . .	A. M. Naylor.
-40 $\frac{3}{8}$	9 $\frac{1}{2}$	15	Sabi Flats . . . .	Dr. Percy Rendall.
40 $\frac{3}{8}$	9 $\frac{3}{8}$	16	Upper Zambesi . . .	M. C. Greaves-Bagshawe.
40 $\frac{1}{4}$	10	13	?	F. Struben.
40 $\frac{1}{4}$	9 $\frac{1}{2}$	13	Matabeleland . . .	Hon. R. A. Ward.
-40 $\frac{1}{8}$	9 $\frac{1}{4}$	15 $\frac{1}{4}$	South Africa . . . .	Dr. W. P. Y. Bainbrigge.
40	10	22	Matabeleland . . .	Abe Bailey.
40	9 $\frac{1}{4}$	10 $\frac{1}{2}$	Near Ruu River, S.E. Africa	C. C. Bowring.
-40	...	...	Nyasaland . . . .	S. Pulley.
-40	10	13 $\frac{1}{2}$	South Africa . . .	A. Ohlsson.
-39 $\frac{1}{2}$	...	...	?	O. R. Dunell.
-39 $\frac{1}{4}$	...	...	Mashonaland . . . .	J. Vaughan.
♀ 39 $\frac{1}{8}$	6 $\frac{1}{4}$	6 $\frac{5}{8}$	Do. . . .	F. C. Selous.
39	10	7 $\frac{3}{4}$	Do. . . .	F. B. Dunsford.
39	9	10 $\frac{3}{8}$	?	Sir Victor Brooke's Collection.
38 $\frac{3}{4}$	9 $\frac{3}{4}$	2 $\frac{1}{2}$	Matabeleland . . .	Rev. Dr. R. J. Nevin.
38 $\frac{1}{2}$	8 $\frac{7}{8}$	13	Pungwe . . . .	Capt. F. H. Lehmann.
38 $\frac{1}{2}$	9 $\frac{1}{4}$	9	Matabeleland . . .	Duke of Roxburghe.
38 $\frac{1}{4}$	9	15 $\frac{1}{2}$	Do. . . .	Hon. C. Greville.
38	9 $\frac{3}{4}$	14 $\frac{7}{8}$	Mashonaland . . .	D. Norman Ritchie.
37	9	14	Matabeleland . . .	Hon. John Ward.
-37	...	...	?	C. T. Jones.

**SABLE ANTELOPE** (*Hippotragus niger*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
32 $\frac{1}{2}$	9	15 $\frac{3}{4}$	British Central Africa . . .	J. E. Gough.
♀ 35 $\frac{3}{8}$	6 $\frac{5}{8}$	...	Lebonibo Mountains . . .	F. Vaughan Kirby.
♀ 34 $\frac{1}{4}$	6 $\frac{1}{2}$	10	Matabeleland . . .	Hon. R. A. Ward.
♀ 33 $\frac{3}{8}$	6 $\frac{3}{4}$	12 $\frac{1}{2}$	?	G. Richards.
♀ 33 $\frac{1}{4}$	6 $\frac{5}{8}$	3 $\frac{3}{4}$	Sabi Flats . . .	Dr. Percy Rendall.
♀ 32	...	...	Mashonaland . . .	F. C. Selous.
- ♀ 32	...	...	?	H. T. and A. H. A. Glynn.
♀ 31 $\frac{1}{2}$	7	12 $\frac{5}{8}$	Algoa Bay . . .	British Museum.
♀ 31	7	7 $\frac{1}{2}$	Matabeleland . . .	J. A. Pease.
♀ 30	6 $\frac{1}{2}$	11 $\frac{1}{2}$	Do. . .	Lord Brackley.



Head of Sable Antelope, from a specimen shot by F. C. Selous.





Head of Roan Antelope, from a specimen shot by F. C. Selous.

**ROAN ANTELOPE** (*Hippotragus equinus*).

*Ee-taka* of the Amandebele.

*Ee-pala-pala chena* of the Makalakas.

*Impengo eetuba* of the Masubias.

*Kwar* of the Masaras.

*Klabakila* of the Basuto.

*M'pelembe* in the Chilala and Chibisa countries.

*Mtagaisi* of the Swazis and Zulus.

*Oo-ka-mooh-we* of the Makubas.

*Qualata* of the Northern Bechuanas.

*Qualata* and *Etsetla* in the Lake Ngami country.

*Qualata* and *Tseu* in the Barotse country.

*Tai-hait-sa* of the Southern Bechuanas.

In spite of its larger size (height at shoulder about 4 feet 9 inches), the shorter horns and mane, the larger ears and eye-tufts, and, above all, the grizzled roan coat, render the present species a much less striking animal than its sable cousin. A marked character of the face of the roan antelope is the cutting-off of the white eye-stripe from the muzzle by a transverse dark bar connecting the dark nose-streak with the brown of the cheeks; while the dark nose-streak itself likewise stops short of the muzzle, which is thus wholly white.

*Distribution*.—From north of the Vaal and Orange Rivers through East and East Central Africa to the Sudan and Abyssinia, and westward to Angola, Nigeria, Gambia, and Senegambia. Recently the name *H. rufopallidus* has been applied to an antelope from East Africa, but it would seem unlikely that this can be anything more than a

local race of the present species. Gordon Cumming shot the roan antelope just north of the Orange River in Griqualand West, where it has for many years been exterminated. Nowhere abundant, the species is most plentiful in Mashonaland and neighbouring districts; in the Transvaal it is only sparsely distributed. South of the Orange River this group of antelopes was formerly represented by the much smaller blaubok, or blue antelope (*H. leucophaeus*), long since exterminated.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-35	9½	8½	South Africa . .	A. Ohlsson.
34½	9	7	Okavango Valley .	Major H. J. Goold-Adams, C.B., C.M.G.
33	...	...	Northern Matabeleland	A. C. Fountaine.
32¾	8½	9½	Mashonaland . .	Julius Jeppe.
32	9½	12	Hanyani Valley . .	F. C. Selous.
-32	10	13¾	Mashonaland . .	Major A. St. H. Gibbons.
31¾	9½	5½	South Africa . .	Sir Edmund G. Loder, Bart.
31½	9½	11¾	Mashonaland . .	F. C. Selous.
-31½	8½	12½	Nyasaland . .	Major P. W. Forbes.
31	8¾	13	Mashonaland . .	J. A. Jameson.
-31	10	6¾	?	Mr. Justice Hopley.
-30¾	10	14¾	Sudan . .	Count T. Palffy.
♀ 30½	7	7¾	Mashonaland . .	F. C. Selous.
30½	9	13½	South Africa . .	G. Richards.
-30½	10	11½	Portuguese East Africa	F. Vaughan Kirby.
-30½	8½	9	Matabeleland . .	Count E. Hoyos.
-30½	...	...	?	O. R. Dunell.
29¾	10½	14½	Matabeleland . .	W. Van Ness.
29¾	9½	11½	Mashonaland . .	Hon. Walter Rothschild.
29¾	9¾	10	Do. . .	Sir John Willoughby, Bart.
29½	9½	4	Bahr-el-Salam, Sudan.	Lieut.-Col. Hon. W. Coke.
-29	...	...	?	Cape Town Museum.
-29	...	...	Batoka Country . .	F. V. Worthington.
-28¾	8½	12½	Gambia . .	Dr. Percy Rendall.

ROAN ANTELOPE (*Hippotragus equinus*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
28 $\frac{5}{8}$	9 $\frac{1}{2}$	9 $\frac{5}{8}$	Mashonaland . . .	F. C. Selous, British Museum.
28 $\frac{1}{2}$	8 $\frac{1}{2}$	...	Sudan . . .	Col. Ralph Vivian.
28 $\frac{1}{2}$	8 $\frac{5}{8}$	9 $\frac{1}{2}$	Mashonaland . . .	S. Chillingworth.
28 $\frac{1}{4}$	9 $\frac{1}{4}$	12 $\frac{3}{4}$	Matabeleland . . .	Hon. R. A. Ward.
♀ 28 $\frac{1}{4}$	6 $\frac{1}{2}$	10 $\frac{1}{2}$	?	Dr. W. P. Y. Bainbrigge.
28	9 $\frac{1}{2}$	11 $\frac{1}{2}$	Upper Zambesia . . .	M. C. Greaves-Bagshawe.
28	9	11 $\frac{1}{8}$	Lo Magondi's Country	Earl of Dunmore.
28	9 $\frac{3}{8}$	5	Nigeria . . .	A. W. M. Brodie.
27 $\frac{7}{8}$	8 $\frac{3}{4}$	8 $\frac{1}{4}$	?	Sir Edmund G. Loder, Bart.
27 $\frac{3}{4}$	8 $\frac{7}{8}$	6 $\frac{1}{4}$	Karonga, B.C.A. . .	C. C. Bowring.
27 $\frac{3}{4}$	9 $\frac{3}{8}$	8 $\frac{3}{8}$	Sudan . . .	Hon. Walter Rothschild.
27 $\frac{1}{8}$	9 $\frac{1}{8}$	9	?	J. Carr Saunders.
27 $\frac{1}{2}$	9	11 $\frac{1}{2}$	Matabeleland . . .	G. H. M. Banks.
27 $\frac{3}{8}$	9	10	Barotseland . . .	H. Timmins.
27 $\frac{3}{8}$	9 $\frac{3}{4}$	8 $\frac{1}{2}$	South Africa . . .	A. Beit.
27 $\frac{1}{4}$	10 $\frac{1}{4}$	6 $\frac{3}{4}$	Matabeleland . . .	Rev. Dr. R. J. Nevin.
27 $\frac{1}{4}$	9	10 $\frac{1}{2}$	Dahomey . . .	F. C. Fuller.
-27 $\frac{1}{4}$	9 $\frac{1}{2}$	10 $\frac{5}{8}$	Noggara, Abyssinia . .	J. Menges.
27	9	...	?	Dr. W. P. Y. Bainbrigge.
♀ 27	7	8 $\frac{3}{4}$	British Central Africa .	J. E. Gough.
26 $\frac{7}{8}$	8 $\frac{5}{8}$	10 $\frac{1}{2}$	Gambia . . .	Dr. Percy Rendall, British Museum.
26 $\frac{3}{4}$	8 $\frac{1}{4}$	5 $\frac{3}{4}$	Mashonaland . . .	J. G. Millais.
26 $\frac{1}{2}$	9 $\frac{3}{4}$	14 $\frac{3}{4}$	Matabeleland . . .	Hon. John Ward.
26 $\frac{1}{2}$	9 $\frac{7}{8}$	12	Muchinga Plateau, Northern Rhodesia	F. Smitheman.
-26.3	8.14	13.8	North of Kassala . . .	Prince Henry of Liechtenstein.
26	8 $\frac{7}{8}$	7 $\frac{1}{8}$	Gambia . . .	The late Earl of Derby.
♀ 25 $\frac{7}{8}$	6 $\frac{3}{4}$	7	Mashonaland . . .	F. C. Selous.
25 $\frac{1}{4}$	9 $\frac{1}{2}$	10 $\frac{1}{2}$	Nigeria . . .	Major A. J. Arnold, D.S.O.
♀ 25 $\frac{1}{4}$	6 $\frac{7}{8}$	...	Do.	J. W. Carroll.
25 $\frac{1}{8}$	9 $\frac{3}{4}$	5 $\frac{3}{8}$	Sudan . . .	Sir Edmund G. Loder, Bart.

**ROAN ANTELOPE** (*Hippotragus equinus*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
25	8 $\frac{1}{2}$	20 $\frac{3}{4}$	Gambia . .	H. C. Goddard.
♀ 24 $\frac{1}{2}$	6 $\frac{1}{2}$	10 $\frac{1}{8}$	Nigeria . .	A. W. M. Brodie.
24	9 $\frac{1}{2}$	14 $\frac{1}{4}$	Benguela . . .	G. W. Penrice.
♀ 24	6 $\frac{3}{8}$	6 $\frac{1}{2}$	Gambia .	H. C. Goddard.
♀ 22 $\frac{1}{4}$	7	8 $\frac{1}{2}$	Songwe, B.C.A.	C. C. Bowring.
♀ 22 $\frac{1}{4}$	6 $\frac{3}{4}$	8 $\frac{1}{2}$	Sudan	Hon. Walter Rothschild.
22 $\frac{1}{8}$	7 $\frac{1}{8}$	8	Do. .	W. D. James.
-22	9	9 $\frac{1}{4}$	Nigeria . .	B. R. M. Glossop.
21 $\frac{7}{8}$	7	9 $\frac{1}{8}$	Abyssinia . .	E. Lort-Phillips.
- ♀ 21 $\frac{1}{2}$	...	...	Nigeria . . .	B. R. M. Glossop.
- ♀ 20	6 $\frac{1}{4}$	10 $\frac{3}{4}$	? .	T. E. Buckley.
19 $\frac{1}{4}$	8	8 $\frac{3}{4}$	Nigeria . .	Lieutenant-Colonel T. D. Pilcher.
17 $\frac{3}{4}$	6 $\frac{1}{8}$	9 $\frac{1}{4}$	Abyssinia . .	British Museum.
12 $\frac{3}{4}$	7	7 $\frac{1}{4}$	British East Africa .	S. L. Hinde.



Skull and Horns of Gemsbuck, from F. H. Barber's specimen.

**GEMSBUCK** (*Oryx gazella*).

The long, straight, spear-like horns, of which even the lion fights shy, render the gemsbuck and its more immediate allies an easily recognised sub-group. And even when, as in the white oryx, the horns are scimitar-shaped, they differ from those of the sable antelope by starting in the plane of the face. It is also a noteworthy fact that in

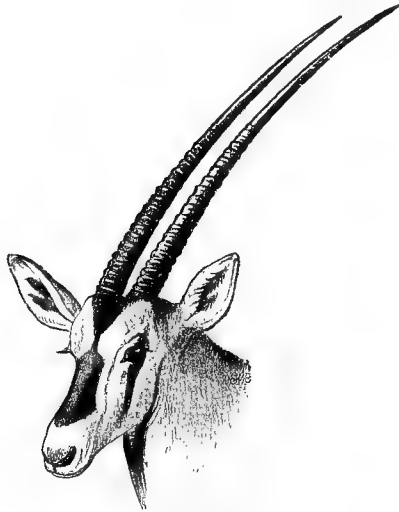
the present species the horns of the females are longer and finer, and therefore more prized, than those of the bulls. An adult gemsbuck stands about 3 feet 9 inches at the shoulder. In addition to the length of its horns, the species is sufficiently characterised by the presence of a tuft of hair on the throat, and the cutting-off of the white eye-stripe from the muzzle by the union of the dark central nose-streak with the black of the cheeks.

*Distribution.*—The desert regions of South-Western Africa, from the northern Karoos of Cape Colony through the Kalahari and Damaraland to Southern Angola in Mossamedes and perhaps Benguela. North of the Chobe and eastwards of Khama's country the species appears to be unknown. So late as 1846 Gordon Cumming found gemsbuck abundant on the northern Karoos of Cape Colony; and even now a few linger on the plains to the south of the lower reaches of the Orange River. In the northern Kalahari, where they exist for months without water, they are still abundant. The splendid horns of the gemsbuck are always regarded as prime trophies of the hunter's skill; the finding, riding-down, and shooting of one of these wary and enduring desert-bred antelopes being a feat of which any man, however well mounted, may be deservedly proud.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
47½	6¾	17½	South Africa . .	The late J. S. Jameson.
♀ 45½	...	...	Bechuanaland . .	F. H. Barber. (See illustration.)
♀ 45¼	6¼	33¾	Lake Ngami . .	Major H. J. Goold-Adams, C.B., C.M.G.
45	8½	18½	Do. . .	Hon. Walter Rothschild.
-44½	...	...	South Africa . .	Dr. A. Schopf.
-44	6½	17	? . .	A. Ohlsson.
-43¾	7	21	? . .	Dr. W. P. Y. Bainbrigge.
43¾	6¾	18½	Nata River . .	F. C. Selous.
43¼	6¾	20⅞	? . .	Sir Victor Brooke's Collection.
-43¼	8	16	? . .	James J. Harrison.
43¾	6⅞	...	Botletli River . .	F. C. Selous.
43	7	18¾	South Africa . .	Rowland Ward.
-43	7½	...	? . .	Earl of Dartmouth.
43	6½	22	? . .	W. Y. Campbell.

GEMSBUCK (*Oryx gazella*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
42 $\frac{7}{8}$	7	14	?	A. Beit.
42 $\frac{1}{2}$	7	20 $\frac{1}{2}$	Bechuanaland . . .	A. Neilson.
42 $\frac{1}{2}$	7	...	Do. . .	Major H. J. Goold-Adams, C.B., C.M.G.
42 $\frac{3}{8}$	6 $\frac{1}{2}$	19 $\frac{1}{2}$	Do. . .	Capt. F. H. Lehmann.
-42 $\frac{1}{2}$	7	23 $\frac{1}{2}$	?	A. Ohlsson.
-42	6 $\frac{5}{8}$	22	?	Julius Jéppe.
42	6 $\frac{1}{8}$	20 $\frac{3}{4}$	?	A. Ryley.
-41 $\frac{7}{8}$	8	15 $\frac{5}{8}$	Great Namaqualand . . .	Th. Rehbock.
41 $\frac{1}{2}$	7	22 $\frac{3}{4}$	?	C. D. Rudd.
♀ 41 $\frac{1}{2}$	6 $\frac{1}{2}$	22 $\frac{3}{4}$	?	Mr. Justice Hopley.
♀ 41 $\frac{1}{8}$	5 $\frac{1}{8}$	29 $\frac{7}{8}$	Great Namaqualand . . .	Th. Rehbock.
♀ 41	7	19	?	Major R. Hayes-Sadler.
♀ 40 $\frac{3}{4}$	6 $\frac{5}{8}$	17 $\frac{1}{8}$	Cunene River . . .	Capt. F. Cookson.
-40 $\frac{3}{4}$	...	...	?	O. R. Dunell.
40 $\frac{3}{8}$	6 $\frac{3}{4}$	16 $\frac{1}{2}$	?	Lewis Atkinson.
-40 $\frac{1}{4}$	6 $\frac{1}{2}$	18 $\frac{1}{2}$	South Africa . . .	R. C. Peake.
-♀ 40 $\frac{1}{4}$	...	...	?	O. R. Dunell.
40	6 $\frac{7}{8}$	18 $\frac{1}{4}$	South Africa . . .	Sir Edmund G. Loder, Bart.
-♀ 40	...	...	Do. . .	Cape Town Museum.
-♀ 39 $\frac{3}{4}$	6 $\frac{1}{2}$	15 $\frac{1}{4}$	Do. . .	Julius Jéppe.
39 $\frac{1}{4}$	6 $\frac{3}{4}$	18	Bechuanaland . . .	Lieut.-Col. W. Sitwell.
39	7 $\frac{1}{4}$	22	?	R. A. Cooper.
39	6 $\frac{1}{2}$	16	South Africa . . .	A. J. Forbes.
♀ 38 $\frac{1}{2}$	6 $\frac{5}{8}$	15 $\frac{7}{8}$	Kalahari . . .	H. A. Bryden.
38	...	18 $\frac{3}{4}$	Bechuanaland . . .	A. C. Fountaine.
38	8 $\frac{1}{2}$	8 $\frac{1}{2}$	South Africa . . .	F. E. Potter.
-38	7	18	Do. . .	A. E. Pease.
-38	...	...	?	C. T. Jones.
♀ 37	6 $\frac{1}{4}$	17 $\frac{1}{2}$	South Africa . . .	Dr. W. P. Y. Bainbrigge.
♀ 36 $\frac{3}{4}$	6 $\frac{5}{8}$	...	North Bechuanaland . . .	F. C. Selous; British Museum.



Head of Beisa.

**BEISA (*Oryx beisa*).**

*Beida* of the Somalis. *Sala* of the Abyssinians of Danakil.

The beisa may be regarded as the north-eastern representative of the gemsbuck, from which it may be distinguished at a glance not only by the absence of a tuft of hair on the throat, but also by the separation of the black nose-stripe from the eye-stripes. There is also no black on the haunches or thighs, and the horns are considerably shorter and less divergent. Height at shoulder reaching to about 4 feet. Weight 458 lbs. (F. J. Jackson, C.B.).

*Distribution*.—North-East Africa, from Suakin through Abyssinia to Berbera in Somaliland, and south to Lake Baringo and the Equator.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
40	...	...	?	Measured by A. O. Hume, C.B., at Aden.
♀ 39	5½	8	Near Hargeisa, Somaliland	E. P. Hare.
37½	7	11½	Somaliland	G. D. E. Chapman.
36¾	6½	6¾	Do.	Prince Boris Czetwertynski.
- ♀ 36½	...	...	Northern Somaliland	J. Menges.
36	7	6½	Somaliland	G. D. E. Chapman.
36	6¾	7¾	East of Lake Rudolph	A. H. Neumann.



BEISA (*Oryx beisa*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
36	6½	10½	50 miles from coast of Somaliland	Capt. J. T. Brinkley.
36	6	8½	Somaliland	Count J. Potocki.
- ♀ 36	...	...	Do.	Dr. Donaldson Smith.
35¾	6¾	9½	Do.	Lord Delamere.
♀ 35¾	5¾	8	Do.	R. Wahrmann.
35½	6½	8¾	Do.	Prince Nicolas Ghika.
♀ 35½	6	10½	East of Lake Rudolph	A. H. Neumann.
35	6	9	Somaliland	Col. Arthur Paget.
♀ 35	5½	7¾	Danakil	Viscount Edmond de Poncins.
35	5¾	7¾	Somaliland	A. S. Trevor.
-35	6⅝	6¼	Do.	J. Johnston-Stewart.
♀ 34¾	5½	8½	Do.	G. M. Norrie.
♀ 34½	6	10½	Do.	Capt. J. M'Call Maxwell.
34½	6¾	8¾	Do.	Alex. R. Alston.
34½	7	6	Do.	Ford G. Barclay.
♀ 34½	5¾	8¾	Do.	R. McD. Hawker.
♀ 34½	5½	13	Do.	T. W. H. Clarke.
34½	6¾	8½	Do.	E. Lee Townshend.
34½	5¼	8	Do.	Sir H. D. Tichborne, Bart.
-34⅝	6	10¾	Do.	Count Scheibler.
-34⅝	8⅞	11⅝	Do.	T. W. H. Clarke.
-34¼	7½	10½	S.E. Somaliland	S. Payne-Gallwey.
- ♀ 34½	5¼	7½	Burgo	P. H. G. Powell-Cotton.
34	6¼	7¾	Somaliland	E. N. Buxton.
34	5	9	Do.	Lord Wolverton.
- ♀ 34	6	11	Do.	S. Payne-Gallwey.
- ♀ 34	5	10	Do.	A. E. Pease.
-33¾	6½	8	Do.	Sir Edmund G. Loder, Bart.
33¾	6	9	Do.	Capt. C. S. Timins.
33¾	6	9	Do.	Digby Davies.

BEISA (*Oryx beisa*)—*continued.*

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
♀ 33 $\frac{3}{4}$	4 $\frac{3}{4}$	8	Somaliland . . .	J. Arkcoll.
-33 $\frac{3}{4}$	6 $\frac{1}{4}$	8 $\frac{3}{8}$	Do.	A. E. Leatham.
33 $\frac{5}{8}$	6 $\frac{3}{4}$	9 $\frac{3}{8}$	Do.	A. H. Straker.
33 $\frac{5}{8}$	5 $\frac{3}{4}$	8 $\frac{1}{4}$	Do.	Major H. G. C. Swayne.
33 $\frac{1}{2}$	5 $\frac{1}{2}$	7 $\frac{5}{8}$	Do.	Col. Arthur Paget.
33 $\frac{1}{2}$	6 $\frac{1}{2}$	10 $\frac{1}{2}$	Do.	G. M. Norrie.
-33 $\frac{1}{2}$	6 $\frac{1}{8}$	8 $\frac{5}{8}$	Do.	Count E. Hoyos.
-♀ 33 $\frac{1}{2}$	5 $\frac{1}{2}$	7 $\frac{1}{2}$	Do.	Capt. M. M'Neill.
-33 $\frac{1}{2}$	...	...	Do.	J. Menges.
33 $\frac{3}{8}$	4 $\frac{7}{8}$	7 $\frac{5}{8}$	Do.	W. D. James.
33 $\frac{1}{4}$	6 $\frac{1}{8}$	9	Do.	Major C. C. Ellis.
-33 $\frac{1}{4}$	5 $\frac{3}{4}$	5 $\frac{3}{4}$	Do.	C. V. A. Peel.
33	6 $\frac{5}{8}$	7 $\frac{1}{4}$	Do.	Capt. B. L. Carew.
♀ 33	5	6 $\frac{3}{4}$	Do.	Capt. G. Campbell.
-33	...	...	Njemps, E. Africa .	F. J. Jackson, C.B.
-33	7	11 $\frac{1}{4}$	Somaliland . . .	Lieut.-Col. J. W. H. Flanagan.
32 $\frac{3}{4}$	6 $\frac{3}{4}$	12 $\frac{1}{4}$	?	Lord Delamere.
32 $\frac{3}{4}$	7 $\frac{1}{2}$	8 $\frac{3}{8}$	Somaliland . . .	Capt. F. C. Quicke.
32 $\frac{3}{4}$	6 $\frac{1}{2}$	8 $\frac{1}{4}$	Do. . .	J. Byng-Paget.
32 $\frac{3}{4}$	6 $\frac{1}{2}$	11 $\frac{1}{4}$	Danakil . . .	Viscount Edmond de Poncins.
♀ 32 $\frac{5}{8}$	5	8	Somaliland . . .	Capt. C. H. Villiers.
32 $\frac{1}{2}$	6	8	Do.	P. B. Vander-Byl.
32 $\frac{1}{2}$	6	7	Do.	Count J. de Bylands.
32 $\frac{1}{2}$	6 $\frac{1}{2}$	8 $\frac{3}{4}$	Do. . .	Major H. C. Morland.
-32 $\frac{1}{2}$	6 $\frac{3}{4}$	8 $\frac{1}{2}$	Do. . .	W. W. Ashley.
32 $\frac{1}{2}$	5 $\frac{1}{4}$	7 $\frac{1}{2}$	Do. . .	A. Leslie Renton.
-32 $\frac{1}{2}$	6 $\frac{1}{2}$	10 $\frac{1}{2}$	Do. . .	Major G. Douglas.
32 $\frac{3}{8}$	6 $\frac{1}{4}$	6 $\frac{1}{4}$	Do.	Lord Delamere.
♀ 32 $\frac{3}{8}$	5 $\frac{1}{2}$	11	Do.	Julius Jeppe.
32 $\frac{1}{4}$	6 $\frac{1}{2}$	8 $\frac{1}{4}$	Do. . .	B. Vincent.
32 $\frac{1}{4}$	6 $\frac{1}{2}$	9	Do.	J. J. Richardson.
32	6 $\frac{3}{4}$	6	Do. . .	T. W. Greenfield.
♀ 32	5 $\frac{1}{2}$	6	Do.	E. T. Marshall.
32	6 $\frac{1}{4}$	8 $\frac{3}{4}$	Do.	G. H. Cheetham.
-31 $\frac{1}{2}$	4 $\frac{7}{8}$	11 $\frac{1}{4}$	Do. . .	Dr. Percy Rendall.
31 $\frac{1}{4}$	5 $\frac{1}{8}$	8 $\frac{1}{2}$	East Central Africa .	A. H. Neumann.
♀ 31	5 $\frac{1}{4}$	7	Somaliland . . .	Major W. L. H. Paget.
31	5 $\frac{3}{4}$	7 $\frac{1}{2}$	Do. . .	B. R. M. Glossop.



Head of Fringe-eared Beisa.

**FRINGE-EARED BEISA (*Oryx callotis*).**

Distinguished from the ordinary beisa by the fringe of long hairs surmounting the ears, by the extension of the eye-stripe to the lower jaw, along which it runs to join the throat-stripe, by the absence of any black on the front of the legs below the knees, and by the rich fawn of the ground-colour of the upper part of the face. Height at shoulder, 48 inches.

*Distribution*.—East Africa, from Kilimanjaro and the Galla country to Masailand and the adjacent territory, probably not so far north as the Athi plains. Although considered a distinct species, it might perhaps be better to regard this animal as a well-marked local race of the ordinary beisa. It is generally found in bush-covered country, either singly or in small herds, and is of a remarkably shy disposition. The Swahili name is cheroa.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
—32	...	...	Athi River . . .	R. Cator.
30½	5¾	10½	East Africa . . .	F. J. Jackson, C.B.
30¼	...	6	Sabaki River District .	T. W. Greenfield.
—30	...	10	East Africa . . .	Sir John Willoughby, Bart.
29½	5⅝	7⅝	Do. . . .	Sir Robert Harvey, Bart.
29	6	6½	Masailand . . .	Lieut.-Col. Hon. W. Coke.
29	5½	11½	Do. . . .	Sir Edmund G. Loder, Bart.
28¾	5⅝	6	Do. . . .	H. C. V. Hunter.

**FRINGE-EARED BEISA** (*Oryx callotis*)—*continued*.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
♀ 28 $\frac{5}{8}$	4 $\frac{3}{4}$	12 $\frac{1}{4}$	Masailand	Henry Charrington.
27 $\frac{3}{4}$	6 $\frac{7}{8}$	10 $\frac{1}{4}$	Do.	F. J. Jackson, C.B.
27 $\frac{1}{8}$	6 $\frac{7}{8}$	8 $\frac{1}{2}$	Do.	Sir Robert Harvey, Bart.
27	6	9	Do.	E. Gedge.
27	7 $\frac{1}{8}$	7 $\frac{3}{8}$	Do.	H. C. V. Hunter.
26 $\frac{3}{4}$	7	9	Do.	J. Gardiner Muir.
♀ 26 $\frac{3}{4}$	5 $\frac{1}{2}$	10	Do.	Capt. R. A. J. Montgomerie, C.B., R.N.
26 $\frac{5}{8}$	7	13	Do.	Sir Robert Harvey, Bart.
26 $\frac{1}{2}$	6 $\frac{1}{2}$	9 $\frac{1}{4}$	Do.	C. Steuart Betton.
-24	7	8 $\frac{1}{2}$	Do.	Count Scheibler.
21	6 $\frac{3}{4}$	10	Do.	British Museum.

**BEATRIX ORYX** (*Oryx beatrix*).

This oryx is a much smaller animal than the beisa, measuring about 2 feet 8 inches at the shoulder, and is of a whitish colour, with a dark spot on the face, and a large dark patch on each cheek, which meets its fellow beneath the throat; the knees and the front of the lower portion of the legs being blackish brown, and the tail-tuft black.

*Distribution*.—The interior of Arabia, especially the Nejd districts and the confines of the great desert south of Orman, and, it is said, the Bushire district at the head of the Persian Gulf. This antelope has very rarely been killed by British sportsmen.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
-26 $\frac{1}{8}$	4 $\frac{1}{2}$	10 $\frac{1}{2}$	Arabia	Paris Museum.
23 $\frac{3}{4}$	5	9 $\frac{1}{4}$	Do.	Sir Edmund G. Loder, Bart.
♀ 15	3 $\frac{3}{8}$	4 $\frac{1}{2}$	Head of Persian Gulf	B. T. Finch, British Museum.



Head of White Oryx.

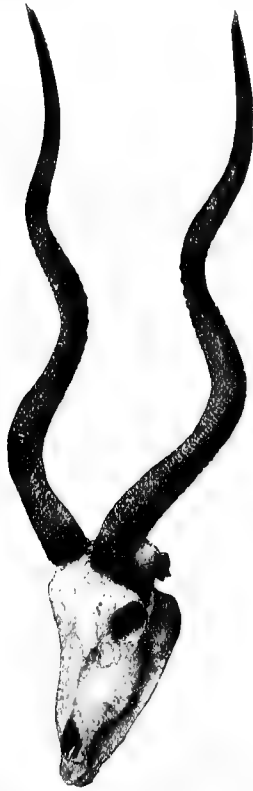
**WHITE ORYX** (*Oryx leucoryx*).

A very distinct species of the genus, agreeing approximately in size with the beisa, but with long recurving scimitar-shaped horns and a generally whitish coloration, showing a more or less distinct chestnut tinge. The chestnut shows itself chiefly on the neck, shoulders, under parts, and upper portions of the limbs; and in addition to this there are six brownish patches or streaks on the face, two of which are situated in the middle line, while two form eye-stripes, the other pair being between the horns and the eyes.

*Distribution*.—North-Western Central Africa, from Sennar and Kordofan to parts of Nubia and the Sudan. Rare in collections and menageries.

Length on front.	Circum- ference.	Tip to Tip.	Locality.	Owner.
39 $\frac{5}{8}$	4 $\frac{7}{8}$	14 $\frac{1}{8}$	?	British Museum.
<sup>1</sup> 39	5 $\frac{1}{4}$	...	N. of Sokoto . . .	Capt. P. S. Wilkinson.
37 $\frac{5}{8}$	5 $\frac{1}{4}$	7 $\frac{1}{4}$	?	British Museum.
35 $\frac{5}{8}$	5 $\frac{1}{2}$	11 $\frac{7}{8}$	?	J. Carr Saunders.
35	5 $\frac{5}{8}$	12	?	Sir Edmund G. Loder, Bart.
33 $\frac{7}{8}$	5 $\frac{3}{8}$	8	?	Hon. Walter Rothschild.
33 $\frac{1}{4}$	5	8 $\frac{1}{4}$	?	Duke of Bedford.
24 $\frac{3}{4}$	4 $\frac{1}{4}$	8 $\frac{3}{4}$	?	Sir Edmund G. Loder, Bart.

<sup>1</sup> Single horn.



Skull and Horns of mounted specimen of Addax presented to the British Museum by J. J. S. Whitaker.

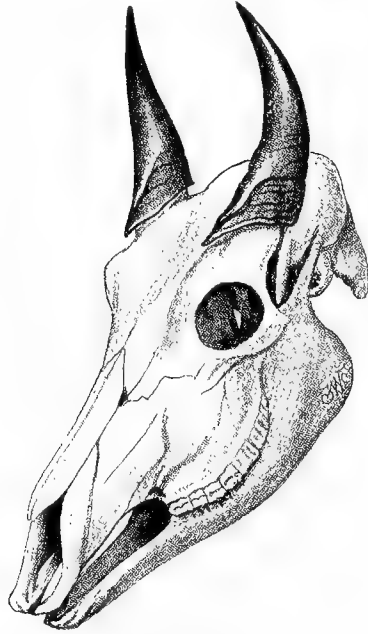
**ADDAX** (*Addax nasomaculatus*).

This antelope is another member of the oryx group, but is referred to a genus apart, of which it is the sole representative. Its most distinctive features are the spirally twisted and closely ringed horns, which recall those of the Indian blackbuck, and the heavy mass of long hair clothing the neck and shoulders and forming a forelock on the forehead. The general colour is yellowish white in summer and grayish in winter, but the head, neck, and mane are brown, although a streak across the face below the eyes, the lips, and a spot on the outer surface of each ear are white. Hoofs very wide and shallow, almost like those of the reindeer. Height at shoulder about 3 feet 6 inches.

*Distribution*.—North Africa and Arabia.

ADDAX (*Addax nasomaculatus*)—*continued*.

Length. On front curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
38½	30½	6½	12½	South Tunisia .	J. J. S. Whitaker, British Museum. (See illustration.)
37¾	31¾	5¾	23½	Sahara . .	W. Barry.
35¾	28	6¾	13¾	North Africa .	Hon. Walter Rothschild.
35	29	6½	14	Do. .	W. Barry.
34½	27	6½	17¼	South Tunisia .	J. J. S. Whitaker.
-34¼	27¾	6½	17	Do. .	A. E. Pease.
33¾	28¾	5¾	22	Do. .	Sir Edmund G. Loder, Bart.
33½	27¼	6½	17¼	Do. .	J. J. S. Whitaker.
33½	26	5½	12¼	Do. .	Hon. R. A. Ward.
32¼	26½	6½	13½	Do. .	Rowland Ward.
31¾	26¼	6¾	17¾	Do. .	F. H. Barber.
31	25½	5¼	13	Do. .	J. H. Thomas.
-31	28	...	...	Do. .	Sir H. H. Johnston, K.C.B.
♀ 30¾	27¼	4¾	17¼	South Algeria .	Hon. Walter Rothschild.
-♀ 30½	27½	...	...	South Tunisia .	Sir H. H. Johnston, K.C.B.
29½	24¾	6¼	14	Sahara . .	Hon. Walter Rothschild.
29¼	25¾	5¼	19½	South Algeria .	Julius Jeppe.
28¾	24¾	5½	12¾	Do. .	British Museum.



Skull of Male Nilgai.

**NILGAI (*Boselaphus tragocamelus*).**

This somewhat ungainly and decidedly small-horned antelope is the single Oriental representative of an important group whose other members are African. Most are of large size, and, with the exception of the elands, lack horns in the females. In the males the horns are angulated in front and generally spirally twisted, but in no case ridged. There are small face-glands, the muzzle is naked, and the tail is long and tufted. Except in the nilgai, the cheek-teeth have short and broad crowns.

From the other members of the group the nilgai is readily distinguished by its short, upright horns, which, although angulated in front, show no distinct spiral twist. With a long and pointed head, this antelope has the fore-legs considerably longer than the hinder pair; and it is chiefly to this peculiarity that its ungainly appearance is due. Both sexes have a mane on the neck, but the bulls alone possess a tuft of long hair on the middle of the throat. The general colour of the adult bull is dark gray, tinged with blue or brown; but the mane and tufts of long hair are black, and streaks and patches on the face, ears, and throat, as well as the under parts, the lower surface



of the tail, and a ring above and below each fetlock, are white. Height at shoulder from 4 feet 4 inches to 4 feet 8 inches. Mr. A. O. Hume shot a specimen in the Aligurh district in 1855 whose horns measured  $11\frac{3}{4}$  along the front curve, and had a circumference of 9.5. They were unfortunately destroyed in the Mutiny.

*Distribution.*—The peninsula of India, from the foot of the Himalaya to the south of Mysore; common in parts of the Eastern Punjab, the North-West Provinces, Guzerat, and the Central Provinces.

Length on front.	Circumference.	Tip to Tip.	Locality.	Owner.
$9\frac{7}{8}$	$7\frac{3}{4}$	$5\frac{1}{2}$	?	Sir Edmund G. Loder, Bart.
$9\frac{1}{2}$	$7\frac{1}{2}$	$6\frac{1}{4}$	?	J. Whitaker.
$-9\frac{1}{2}$	$8\frac{1}{2}$	...	Bhurtpur . .	Capt. E. R. Gordon.
$9\frac{1}{4}$	$6\frac{3}{4}$	$4\frac{7}{8}$	?	British Museum.
9	7	9	?	J. Whitaker.
9	$6\frac{5}{8}$	$3\frac{1}{2}$	?	A. O. Hume, C.B.
$8\frac{7}{8}$	$6\frac{1}{2}$	$5\frac{1}{4}$	Central Provinces .	C. D. Twopeny.
$8\frac{3}{4}$	$6\frac{1}{4}$	$5\frac{3}{4}$	Bhurtpur .	Major J. M. Fawcett.
$-8\frac{3}{4}$	...	...	Jumna Valley .	Indian Museum.
$8\frac{1}{2}$	$7\frac{1}{2}$	$4\frac{3}{4}$	Central Provinces .	Capt. E. H. R. Hibbert.
$8\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{4}$	Do. . .	Marquis of Dufferin and Ava.
$-8\frac{1}{2}$	$6\frac{1}{2}$	6	Do.	Dublin Museum.
$8\frac{1}{2}$	$7\frac{1}{2}$	$5\frac{1}{4}$	Do. .	Dr. W. P. Y. Bainbrigge.
$-8\frac{1}{2}$	6	$5\frac{1}{2}$	Do. .	Count J. Potocki.
$-8\frac{3}{8}$	$7\frac{3}{4}$	$6\frac{1}{2}$	Do. .	Dr. Percy Rendall.
$8\frac{1}{4}$	$7\frac{1}{8}$	$7\frac{3}{4}$	North India .	Sir Victor Brooke's Collection.
-8.25	7.80	6.70	Ulwar . .	Viscount Edmond de Poncins.
$8\frac{1}{4}$	...	...	Kathiawar . .	Lieut.-Col. L. L. Fenton.
$-8\frac{1}{4}$	...	...	Kota .	H.H. Maharaja of Bikanir.
$8\frac{1}{8}$	$6\frac{1}{8}$	5	?	Hume Collection, British Museum.
8	$6\frac{3}{4}$	$6\frac{1}{4}$	Nimar, Cent. Prov. .	Lieut.-Col. H. Wade-Dalton.
$7\frac{3}{4}$	$7\frac{1}{2}$	$5\frac{3}{4}$	?	H. G. Buxton.
$7\frac{3}{4}$	7	6	Central Provinces .	Major A. Colville.
$7\frac{5}{8}$	6	$7\frac{1}{4}$	?	L. M. Le Champion.



Head of Bushbuck shot by A. M. Naylor.

**BUSHBUCK (*Tragelaphus scriptus*).**

*Assali*, Danakil name.

*Bawala* in the Chilala and Chibisa countries.

*Boschbok* of the Dutch.

*Dol* of the Somalis.

*Ibawara* of the Lower Zambesi natives.

*Imbabala* of the Swazis and Matonga.

*Inkonka* (male), *Imbabala* (female) of the Zulus.

*M'babala* in the Barotse country.

*M'babala* and *Serolo buchuhu* in the Lake Ngami country.

*Mbawara* of the Swahilis.

*Scrolobutuku* of the Bamangwatos.

*Ungurungu* of the Makubas.

The bushbucks and harnessed antelopes form an extensive group of species nearly allied to the kudu, but usually displaying great sexual differences in the colour of the coat, and generally having a simpler spiral to the horns. The females are nearly always striped with white on a chestnut ground, but the bucks may be darker and more uniformly coloured. As in the kudu, the females are hornless. The true or lesser bushbuck is the smallest and at the same time the most widely spread member of the group, having several local races. The height at the shoulder ranges from  $2\frac{1}{2}$  to 3 feet, and the weight from 100 lbs. to 170 lbs. In the Abyssinian bushbuck (*T. scriptus decula*), which ranges

into the dense forests bordering the Webbe River in Somaliland, and is locally known as *dol*, the build is low and stout, and the general colour yellowish, the light stripes being nearly obsolete. In the West African bushbuck (*T. scriptus typicus*), from West, Central, and South-Central Africa, the ground-colour is bright rufous, and the spots and stripes are very conspicuous. On the other hand, in the East African race (*T. scriptus roualeyni*) the bucks are dark brown, with only faint indications of white markings. Finally, in the Cape bushbuck (*T. scriptus sylvaticus*) the colour is dark brown without transverse white stripes, and the spots reduced to a few indistinct ones on the haunches.

In the southern districts of Cape Colony bushbuck are still to be found in abundance, even in the neighbourhood of large towns like Port Elizabeth. Recourse is, however, had to preserving for the greater part of the year, by which means the well-known Easter Hunts, when driving is practised and large bags are made, are still kept up. In more inland districts either the does or both sexes are periodically protected. A wounded bushbuck will often make a desperate and dangerous charge.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-19 $\frac{7}{10}$	5 $\frac{3}{4}$	11	Lower Zambesia	Surgeon W. H. S. Stalkartt, R.N.
17 $\frac{7}{8}$	6 $\frac{1}{4}$	5 $\frac{7}{8}$	East Africa	Sir John Kirk, K.C.B.
-17 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{5}{8}$	Mount Zomba, B.C.A.	D. MacAlpine.
17 $\frac{1}{2}$	6	5 $\frac{1}{2}$	N.E. Gazaland	A. M. Naylor. (See illustration.)
17	5 $\frac{1}{2}$	8 $\frac{1}{8}$	Mount Zomba, B.C.A.	C. C. Bowring.
16 $\frac{5}{8}$	5 $\frac{7}{8}$	6 $\frac{1}{4}$	Manda Island, B.E.A.	British Museum.
16 $\frac{1}{2}$	5 $\frac{3}{4}$	(one horn)	Pungwe	Col. G. A. Percy.
-16 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	?	Julius Jeppe.
-16 $\frac{1}{2}$	...	...	South Africa	A. Bowker, Grahamstown Museum.
-16 $\frac{1}{2}$	...	...	?	O. R. Dunell.
-16 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	Natal	General A. W. Drayson.
-16	6 $\frac{1}{2}$	...	Kalamba Hills	F. Vaughan Kirby.
15 $\frac{3}{4}$	6	5 $\frac{3}{8}$	Okavango River	Major H. J. Goold-Adams, C.B., C.M.G.
15 $\frac{3}{4}$	6	8 $\frac{5}{8}$	Zululand	A. H. Neumann.
15 $\frac{3}{4}$	5	3 $\frac{3}{4}$	Do.	Capt. L. O. Williams.
-15 $\frac{3}{4}$	...	...	South Africa	F. H. Barber.
15 $\frac{5}{8}$	5 $\frac{1}{2}$	3	British East Africa	G. E. Smith.

**BUSHBUCK (*Tragelaphus scriptus*)—continued.**

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
15 $\frac{5}{8}$	5 $\frac{1}{4}$	5	Pungwe	Hon. T. Thynne.
15 $\frac{1}{2}$	5 $\frac{1}{2}$	3 $\frac{5}{8}$	Transvaal .	C. F. Eustace.
15 $\frac{1}{2}$	5 $\frac{3}{8}$	4 $\frac{1}{2}$	South Africa .	F. C. Selous.
-15 $\frac{1}{2}$	...	...	Do.	H. T. and A. H. Glynn.
15 $\frac{3}{8}$	6 $\frac{3}{8}$	7 $\frac{1}{2}$	Do.	Major-General Sir Arthur Ellis, K.C.V.O.
15 $\frac{3}{8}$	5 $\frac{1}{2}$	7 $\frac{1}{8}$	Zululand	Hon. Charles Ellis.
15 $\frac{1}{4}$	6	6 $\frac{3}{4}$	Pungwe	H. R. Holden.
-15 $\frac{1}{4}$	7 $\frac{1}{4}$	6 $\frac{1}{2}$	Nyasaland .	Alex. R. Alston.
15 $\frac{1}{8}$	5 $\frac{1}{2}$	8 $\frac{1}{2}$	?	Mr. Justice Hopley.
14 $\frac{3}{4}$	5 $\frac{3}{8}$	6 $\frac{3}{4}$	Shiré River, B.C.A. .	H. H. Williams.
14 $\frac{3}{4}$	5 $\frac{1}{4}$	6 $\frac{1}{2}$	Zululand	Lieut.-Col. Hon. W. Coke.
14 $\frac{3}{4}$	5	6 $\frac{1}{2}$	South Africa	R. A. Cooper.
-14 $\frac{3}{4}$	5 $\frac{3}{4}$	3 $\frac{3}{4}$	Nyasaland .	Alex. R. Alston.
14 $\frac{5}{8}$	5 $\frac{3}{4}$	2 $\frac{3}{4}$	Matabeleland .	G. H. M. Banks.
14 $\frac{3}{8}$	5 $\frac{1}{2}$	7	Zambesia . . .	G. Richards.
-14 $\frac{1}{2}$	...	...	Cape Colony	F. H. Barber.
-14 $\frac{1}{4}$	...	...	Transvaal . .	C. T. Jones.
-14 $\frac{1}{8}$	5	7	Pungwe .	Julius Jeppe.
14	...	...	East Africa .	F. J. Jackson, C.B.
14	5 $\frac{7}{8}$	5 $\frac{3}{4}$	Matabeleland	H. and C. Beddington.
14	5 $\frac{7}{8}$	6 $\frac{1}{8}$	South Africa	C. D. Rudd.
14	5 $\frac{1}{2}$	10 $\frac{1}{4}$	Pungwe .	G. Micklethwait.
14	5 $\frac{1}{4}$	7	Ngamiland	Capt. E. J. Lugard.
-14	6	7 $\frac{1}{2}$	South Africa	James J. Harrison.
13 $\frac{7}{8}$	5 $\frac{3}{4}$	5 $\frac{1}{2}$	Do.	H.R.H. the Duke of Saxe-Coburg and Gotha.
13 $\frac{3}{4}$	5 $\frac{3}{4}$	6 $\frac{1}{2}$	Do.	Hon. Walter Rothschild.
13 $\frac{3}{4}$	5 $\frac{1}{2}$	5 $\frac{3}{8}$	Do.	Sir Edmund G. Loder, Bart.
-13 $\frac{3}{4}$	6 $\frac{1}{4}$	6	Natal	T. E. Buckley.
13 $\frac{5}{8}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	East Africa . . .	H. C. V. Hunter.
13 $\frac{5}{8}$	5 $\frac{3}{8}$	4 $\frac{1}{8}$	?	Sir Victor Brooke's Collection.

BUSHBUCK (*Tragelaphus scriptus*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
13 $\frac{1}{2}$	5 $\frac{1}{2}$	7	South Africa	F. C. Selous.
13 $\frac{1}{2}$	5 $\frac{1}{4}$	5 $\frac{8}{8}$	Do.	British Museum.
13 $\frac{1}{2}$	5 $\frac{1}{8}$	4 $\frac{8}{8}$	Do.	Sir John Willoughby, Bart.
-13 $\frac{3}{8}$	5 $\frac{7}{8}$	7 $\frac{1}{4}$	North of Pungwe	Count E. Hoyos.
-13 $\frac{1}{4}$	...	...	Cape Colony	C. T. Jones.
13	6 $\frac{1}{4}$	5 $\frac{1}{8}$	East Africa	F. J. Jackson, C.B.
13	5 $\frac{1}{2}$	7	Benguela	G. W. Penrice.
13	5 $\frac{1}{4}$	5	Pungwe	G. L. Bonham.
13	5 $\frac{1}{4}$	5 $\frac{1}{2}$	British Central Africa	J. E. Gough.
-13	...	...	Zambesia	C. T. Jones.
12 $\frac{3}{4}$	5	4 $\frac{1}{2}$	South Africa	A. E. Capell.
-12 $\frac{3}{4}$	5 $\frac{3}{4}$	8 $\frac{1}{4}$	Barberton	Dr. Percy Rendall.
12 $\frac{3}{4}$	4 $\frac{7}{8}$	5 $\frac{1}{2}$	?	Dr. W. P. Y. Bainbrigge.
12 $\frac{3}{8}$	5 $\frac{1}{8}$	4 $\frac{5}{8}$	Chobe Valley	F. C. Selous, British Museum.
12 $\frac{1}{4}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	South Africa	E. G. Christian.
-12 $\frac{1}{4}$	5	5 $\frac{1}{4}$	Matabeleland	J. Brander Dunbar.
11 $\frac{3}{4}$	5 $\frac{5}{8}$	4 $\frac{3}{4}$	Pungwe	Hon. T. Thynne.
11 $\frac{3}{4}$	5 $\frac{1}{8}$	4 $\frac{1}{2}$	Uganda	The late Capt. Speke, British Museum.
11 $\frac{3}{4}$	5	6 $\frac{3}{8}$	East Africa	Sir Robert Harvey, Bart.
-11 $\frac{3}{4}$	...	...	Adda Bush	Cape Town Museum.
10 $\frac{3}{4}$	4 $\frac{1}{2}$	5	Nigeria	Major A. J. Arnold, D.S.O.
10 $\frac{1}{2}$	4 $\frac{1}{2}$	2 $\frac{1}{4}$	Gambia	A late Earl of Derby, British Museum.
-9 $\frac{3}{8}$	4 $\frac{1}{2}$	6 $\frac{1}{8}$	Songwe, Nyasaland	John Yule.

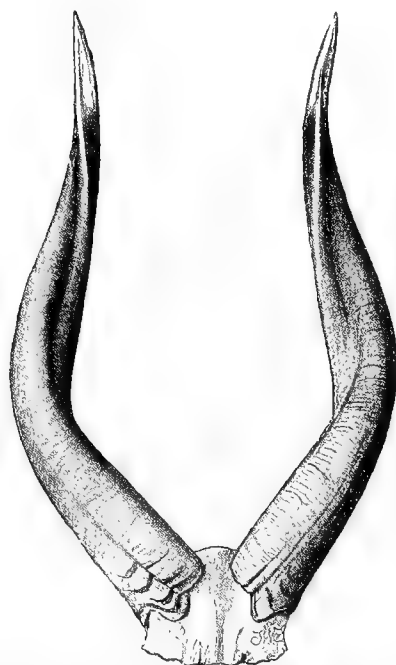


Head of Abyssinian Bushbuck shot in the Webbe Shebayle River District, Somaliland, by Major H. G. C. Swayne.

The following specimens belong to the Abyssinian race (*T. scriptus decula*); the body measurements being those of one shot by Viscount Edmond de Poncins on the Hawash River, 1898:—

From nose to root of tail	48 $\frac{3}{8}$ ins.
Tail (hair included)	10 $\frac{3}{4}$ "
Height at withers	26 $\frac{3}{4}$ "
Round the body	30 $\frac{3}{8}$ "

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-17	...	...	Somaliland	Major H. G. C. Swayne.
-16 $\frac{1}{2}$	6 $\frac{1}{4}$	5	Do.	A. H. Straker.
16	6	7 $\frac{1}{4}$	Do.	Major H. G. Swayne.
14 $\frac{1}{2}$	6 $\frac{7}{8}$	5	Do.	A. H. Straker.
-13 $\frac{3}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{4}$	Harar, Abyssinia	Prince de Lucinge.
-13	5 $\frac{1}{2}$	6 $\frac{1}{10}$	Do.	Do.
-12 $\frac{7}{8}$	5 $\frac{1}{4}$	3 $\frac{1}{4}$	Near Hawash River, Abyssinia	Viscount Edmond de Poncins.
12 $\frac{5}{8}$	5	5 $\frac{1}{4}$	Abyssinia	W. D. James.
12	5 $\frac{1}{8}$	5 $\frac{1}{8}$	Do.	British Museum.
11	5 $\frac{1}{8}$	5	Settite River, Abyssinia	Col. Ralph Vivian.
11	4 $\frac{3}{8}$	2 $\frac{5}{8}$	Northern Abyssinia	British Museum.



Horns of Male Bongo, from the type specimen in the British Museum.

**BONGO or BROAD-HORNED ANTELOPE** (*Tragelaphus euryceros*).

This West African species is the largest of the harnessed antelopes. In addition to its large size, it is characterised by the bright chestnut colour of the males, marked with a number of narrow transverse white stripes, the shortness of the hair, the absence of a throat-fringe, and the smooth and stout horns, of which the tips become yellow by wear. The markings on the face take the form of a pair of white spots below the eyes, and there is a white crescent on the breast. Height at the shoulder probably about 4 feet.

*Distribution*.—West Africa, from Liberia, through Fanti to the Ashkankolu Mountains and the Gaboon. It is doubtful if this rare and beautiful antelope has ever been killed by British sportsmen. The original specimens were obtained by P. Du Chaillu, and are in the British Museum.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On front curve.	Straight.				
32 $\frac{1}{2}$	27 $\frac{1}{4}$	9 $\frac{1}{8}$	16 $\frac{1}{8}$	Gaboon . . .	Sir Edmund G. Loder, Bart.
31 $\frac{1}{2}$	26 $\frac{1}{2}$	9 $\frac{3}{8}$	12 $\frac{3}{8}$	West Africa . . .	Sir Victor Brooke's Collection.
30 $\frac{1}{2}$	24 $\frac{7}{8}$	10 $\frac{7}{8}$	12 $\frac{3}{8}$	Do. . . . .	Do.
30	24 $\frac{1}{8}$	9 $\frac{3}{8}$	11 $\frac{1}{4}$	Ashkankolu Mountains	British Museum.
29 $\frac{1}{2}$	25 $\frac{7}{8}$	9 $\frac{3}{8}$	10 $\frac{1}{8}$	Gaboon . . . . .	P. Du Chaillu, British Museum.
27 $\frac{1}{2}$	23 $\frac{3}{4}$	10 $\frac{3}{8}$	10 $\frac{3}{8}$	Fanti . . . . .	Do.



Horns of Nyala, from a specimen in the possession of F. H. Barber.

### NYALA (*Tragelaphus angasi*).

The next African representative of the larger harnessed antelopes is a smaller and more delicately built animal than the bongo, standing about 3 feet 6 inches at the shoulder. Weight about 250 lbs. to 300 lbs. In both sexes the hair is very long and coarse, but in the male its colour is dark grayish brown with a small number of indistinct white stripes, while in the female it is bright reddish chestnut with clearly defined stripes. The males have a fringe of long hair on the neck and the under parts of the body, their horns being much rougher than those of the bongo. As in the latter, the hoofs are short.

*Distribution*.—South-East Africa, including Zululand, Delagoa Bay, and Nyasaland; on the West Coast it has been reported from Angola, although this form may indicate a distinct local race.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On front curve.	Straight.				
31 $\frac{1}{8}$	24 $\frac{1}{2}$	8 $\frac{1}{4}$	3 $\frac{1}{2}$	Shiré River, B. C. A.	Fergus Maclagan.
29 $\frac{3}{4}$	24	...	11 $\frac{1}{2}$	?	F. J. Newnham.
29 $\frac{1}{4}$	...	...	...	Delagoa Bay . . .	F. H. Barber. (See illustration.)



NYALA (*Tragelaphus angasi*)—*continued*.

On front curve.	Length. Straight.	Circumference.	Tip to Tip.	Locality.	Owner.
-29 $\frac{1}{8}$	...	...	...	?	O. R. Dunell.
28 $\frac{1}{2}$	23 $\frac{3}{4}$	8	12 $\frac{3}{4}$	Zululand	Hon. Walter Rothschild.
-28 $\frac{1}{2}$	...	...	...	?	W. Russell Bowker.
-28 $\frac{1}{2}$	...	...	...	Delagoa Bay	F. H. Barber.
-28 $\frac{1}{2}$	...	...	...	Do.	Prince Boris Czetwertynski.
28	24	8	15	Katanga, B.C.A.	John Yule.
28	23	7 $\frac{1}{2}$	13 $\frac{1}{2}$	Near Chiromo, B.C.A.	Staff-Surgeon J. Dowson, R.N.
28	...	8 $\frac{1}{8}$	10 $\frac{1}{8}$	South Africa	British Museum.
-28	24 $\frac{1}{4}$	7 $\frac{1}{2}$	11 $\frac{3}{4}$	Delagoa Bay	C. T. Jones.
-28	23 $\frac{3}{4}$	8	11	?	Dr. W. P. Y. Bainbrigge.
27 $\frac{5}{8}$	22 $\frac{1}{2}$	7 $\frac{7}{8}$	9 $\frac{1}{2}$	South Africa	Sir Victor Brooke's Collection.
27 $\frac{5}{8}$	23	7 $\frac{7}{8}$	8 $\frac{1}{2}$	Do.	Earl of Dunmore.
-27 $\frac{1}{2}$	23	8 $\frac{1}{2}$	13	Do.	E. D. Scott.
27 $\frac{1}{2}$	22 $\frac{1}{4}$	7 $\frac{5}{8}$	8 $\frac{1}{2}$	?	C. D. Rudd.
27 $\frac{1}{2}$	23 $\frac{1}{2}$	7 $\frac{1}{2}$	15 $\frac{3}{8}$	Delagoa Bay	Major H. J. Goold-Adams, C.B., C.M.G.
27 $\frac{3}{8}$	...	8 $\frac{1}{8}$	10 $\frac{1}{8}$	South Africa	Sir Edmund G. Loder, Bart.
-27 $\frac{1}{4}$	...	7 $\frac{1}{2}$	10 $\frac{5}{8}$	?	Julius Jeppe.
-27 $\frac{5}{8}$	23 $\frac{1}{2}$	...	14	Delagoa Bay	H. T. and A. H. Glynn.
27	...	8	9 $\frac{1}{8}$	Shiré River, B.C.A.	F. Vaughan Kirby.
27	22 $\frac{5}{8}$	7 $\frac{3}{4}$	11 $\frac{1}{4}$	?	J. R. Buckler.
26 $\frac{3}{4}$	22 $\frac{1}{4}$	7 $\frac{1}{2}$	11	?	F. E. Potter.
26 $\frac{3}{4}$	22 $\frac{3}{8}$	7	11 $\frac{3}{4}$	Amatongaland	H. A. Bryden.
26 $\frac{1}{2}$	22	7 $\frac{1}{4}$	7	Delagoa Bay	Frank Harris.
-26 $\frac{1}{2}$	22 $\frac{1}{2}$	7 $\frac{5}{8}$	6 $\frac{1}{8}$	Do.	Dr. Percy Rendall.
26 $\frac{1}{4}$	22	6 $\frac{7}{8}$	11 $\frac{5}{8}$	Do.	F. C. Selous.
26	...	7 $\frac{3}{8}$	8 $\frac{7}{8}$	Zululand.	Hon. Charles Ellis.
25	21	8	9 $\frac{3}{8}$	?	Capt. A. M'Lean Wait.
-25	22 $\frac{1}{2}$	8	12 $\frac{1}{4}$	?	A. Ohlsson.
24 $\frac{1}{2}$	20 $\frac{1}{2}$	...	...	Amatongaland	Cape Town Museum.
23 $\frac{3}{8}$	20	7 $\frac{5}{8}$	11 $\frac{5}{8}$	Zululand.	Durban Museum.
23 $\frac{1}{4}$	20 $\frac{1}{4}$	7 $\frac{1}{4}$	7 $\frac{1}{2}$	Do.	G. Richards.
23 $\frac{1}{8}$	19	6 $\frac{7}{8}$	7	Do.	A. H. Neumann.
23	...	7	5 $\frac{5}{8}$	Do.	British Museum.
-22 $\frac{1}{4}$	19 $\frac{1}{2}$	7	9 $\frac{7}{8}$	Delagoa Bay	Count E. Hoyos.
-22	...	...	...	St. Lucia Bay	G. F. Angas.
21	19	9	...	Do.	Lieut.-Col. Hon. W. Coke.



Horns of West African Harboured Antelope, from the Gambia.

**WEST AFRICAN HARBOURED ANTELOPE (*Tragelaphus gratus*).**

Together with its near ally the situtunga, this species differs from all the other members of the group by the extreme elongation of the hoofs, which are thus adapted for supporting the weight of the body on the spongy soil of the marshes in which these antelopes dwell. The lateral hoofs, too, are much more developed than in other harboured antelopes. The general coloration of the West African species is very similar to that of the nyala, the ground-colour of the coat of the male being olive, and that of the female bright rufous, marked in both sexes with white stripes on the body and spots on the face. There is, however, no fringe of long hair on the throat. Height

at shoulder about 3 feet 7 inches. Both in this species and the situtunga the horns of the males are longer and more twisted than in the other members of the genus, and thus come very close to those of the kudu. In the situtunga the coloration of the adult is uniform grayish brown. The West African species ranges from the Congo to the Gaboon and Cameroon districts. It has but seldom been collected by sportsmen, so that very little is known of its habits in the wild state. Several specimens have been bred in captivity at the Zoological Gardens, Amsterdam.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On front curve.	Straight line.				
30	26 $\frac{1}{4}$	7 $\frac{1}{2}$	14 $\frac{7}{8}$	?	Rowland Ward.
29 $\frac{1}{2}$	24 $\frac{1}{2}$	8 $\frac{1}{8}$	14	Gaboon . . .	Sir Edmund G. Loder, Bart.
28 $\frac{1}{2}$	23	8	8	Gambia	Rowland Ward. (See illustration.)
25 $\frac{3}{4}$	21 $\frac{1}{4}$	6 $\frac{3}{4}$	12 $\frac{1}{4}$	Do. .	Guy H. Sangster.
25 $\frac{1}{2}$	22	8	...	French Congo .	Hon. Walter Rothschild.
-24 $\frac{1}{8}$	21 $\frac{1}{4}$	7 $\frac{3}{8}$	6 $\frac{1}{2}$	West Africa .	Dr. Percy Rendall.
-23 $\frac{1}{2}$	20 $\frac{1}{8}$	8 $\frac{1}{8}$	9 $\frac{1}{16}$	Do. .	Do.
...	19	...	...	Gaboon .	British Museum.
23 $\frac{1}{2}$	18	7 $\frac{7}{8}$	11 $\frac{3}{4}$	Do. .	Sir Victor Brooke's Collection.
23	20 $\frac{1}{2}$	6 $\frac{7}{8}$	9 $\frac{1}{2}$	West Africa	Hon. Walter Rothschild.
22 $\frac{3}{4}$	19 $\frac{1}{2}$	7	10 $\frac{3}{8}$	Nigeria .	J. A. Burdon.
22 $\frac{3}{8}$	19 $\frac{3}{4}$	7	11 $\frac{1}{4}$	Gambia	Rowland Ward.
-21.5	...	7.8	...	?	Berlin Museum.
-17	14 $\frac{1}{16}$	6 $\frac{3}{8}$	...	Ogooné . . .	Paris Museum.



Frontlet and Horns of Situtunga, from John Yule's specimen.

**SITUTUNGA** (*Tragelaphus spekei*).

<i>Situtunga</i> in the Barotse country.	<i>Situtunga</i> , <i>Puvula</i> , <i>Unzuzu</i> of the
<i>Zowè</i> in the Chilala and Chibisa	tribes on the Chobe and Central
countries.	Zambesi.
<i>Nakong</i> of the Batauwani at Lake	<i>N'zoé</i> of the natives of Lakanga
Ngami.	River north of the Zambesi.

This species, also known as the nakong, has the same habits and make as the West African harnesses antelope, from which it differs by its uniformly grayish-brown colour ; the young alone being faintly barred and spotted. Another peculiarity is to be found in the length and

silkeness of the hair. The horns, which are nearly smooth and strongly keeled, form nearly two complete turns, and thus approximate to those of the kudu.

*Distribution.*—The situtunga is an inhabitant of the dense reed-swamps bordering the rivers of Central, South-Central and East Africa; and is semi-aquatic in its habits, frequently burying itself up to the eyes in the water. Consequently it is one of the most difficult of all antelopes to kill; and has even baffled the energy of Mr. Selous. By firing the reed-beds in the dry season, the natives are able to spear the situtunga as they cross open water. At night these antelopes leave the reed-brakes for the islands in the rivers, but before dawn return to their impenetrable covert. Mr. A. B. Phipps, in a letter dated October 1895, states that they have become very rare in the swamps bordering the Okavango River, owing to that river having changed its course and ceased to flow into the Botletli. Consequently they go down to the latter for water, and are shot. A few are found on a bush-clad rocky island far out in the Victoria Nyanza; in which neighbourhood the species was first discovered by the late Captain Speke.

Length.		Circum- ference.	Tip to Tip.	Locality.	Owner.
On front curve.	Straight line.				
35	28	7½	15½	South end of Lake Tanganyika	John Yule. (See illustration.)
-33½	27½	7½	19	?	Julius Jeppe.
33½	26½	8	16½	Okavango Valley	Major H. J. Goold-Adams, C.B., C.M.G.
-33	...	...	...	?	Alfred Edden.
32½	27	7½	16½	Chobe Valley	F. C. Selous.
-32½	...	...	...	?	C. T. Jones.
31½	25½	8½	17½	Near Linyanti	F. C. Selous.
31½	24½	7	16½	Chobe Valley	F. C. Selous, British Museum.
-31½	25½	7½	13½	Bangweolo	F. Smitheman.
-31½	25½	7½	14½	Congoland	S. de Brazza, Paris Museum.
31	23½	8	9½	?	G. Richards.
-30½	...	...	...	?	O. R. Dunell.
-30½	23½	8½	15½	?	Julius Jeppe.
-30	25	7½	18	?	Mr. Justice Hopley.
29½	25	8½	17	?	R. A. Cooper.

SITUTUNGA (*Tragelaphus spekei*)—*continued.*

Length.		Circum- ference.	Tip to Tip.	Locality.	Owner.
On front curve.	Straight line.				
-29 $\frac{1}{2}$	26	7 $\frac{3}{4}$	16	?	A. Ohlsson.
-28 $\frac{3}{4}$	26 $\frac{1}{4}$	7 $\frac{5}{8}$	14 $\frac{7}{8}$	Lake Mweru, B.C.A.	R. H. Ferrers Stranack.
27 $\frac{1}{2}$	23 $\frac{1}{8}$	7 $\frac{1}{8}$	10	B.C.A.	Rowland Ward.
27 $\frac{1}{4}$	21 $\frac{1}{2}$	8	6	Barotseland	H. Timmins.
27 $\frac{1}{8}$	22 $\frac{3}{8}$	7 $\frac{5}{8}$	14 $\frac{7}{8}$	Lake Mweru, B.C.A.	Rowland Ward.
26 $\frac{3}{4}$	21 $\frac{1}{4}$	7 $\frac{1}{4}$	11 $\frac{3}{8}$	?	W. Van Ness.
26 $\frac{1}{2}$	21 $\frac{3}{4}$	7 $\frac{1}{2}$	17	Chobe Valley	Frank Harris.
26	22 $\frac{5}{8}$	7	17 $\frac{1}{2}$	?	Sir Victor Brooke's Collection.
...	25	...	...	Okavango Valley	A. B. Phipps.
25 $\frac{7}{8}$	22 $\frac{1}{4}$	7 $\frac{1}{4}$	19 $\frac{3}{8}$	Chobe Valley	F. C. Selous, British Museum.
25 $\frac{1}{2}$	21 $\frac{1}{4}$	7	13 $\frac{3}{8}$	Bangweolo	F. Smitheman.
25	21	8	16 $\frac{1}{4}$	Botletli Valley	Hon. Walter Rothschild.
24	20	7 $\frac{1}{2}$	11 $\frac{1}{2}$	Barotseland	E. D. Scott.
23 $\frac{5}{8}$	...	7 $\frac{1}{4}$	10	?	Major H. J. Goold-Adams, C.B., C.M.G.
23	20 $\frac{1}{4}$	...	5 $\frac{7}{8}$	?	F. H. Barber.
22 $\frac{1}{4}$	19 $\frac{1}{2}$	10	7 $\frac{1}{2}$	?	Hon. Walter Rothschild.
20 $\frac{3}{4}$	18 $\frac{1}{4}$	6 $\frac{1}{4}$	10	Benguela	G. W. Penrice.
20 $\frac{3}{4}$	17 $\frac{1}{4}$	6 $\frac{1}{4}$	5	Do.	Do.
19 $\frac{3}{8}$	16 $\frac{7}{8}$	6 $\frac{3}{8}$	9 $\frac{1}{4}$	Barotseland	R. T. Coryndon.
-17 $\frac{1}{4}$	...	5 $\frac{3}{4}$	7	Victoria Nyanza	E. Gedge.
15 $\frac{3}{4}$	14 $\frac{1}{8}$	5 $\frac{3}{8}$	8 $\frac{3}{4}$	Do.	Hon. Walter Rothschild.



Head of Male Greater Kudu.

**GREATER KUDU (*Strepsiceros kudu*).**

<i>Eebala-bala</i> of the Amandebele.	<i>Ngoma</i> in the Chilala and Chibisa countries.
<i>Ee-zilarwa</i> of the Makalakas.	
<i>Dwar</i> of the Masaras.	<i>Noro</i> of the Mashonas.
<i>Godir</i> of the Somalis.	<i>Tolo</i> of the Bechuanas.
<i>Itolo</i> of the Basutos.	<i>Tolo</i> in the Barotse and Lake Ngami countries.
<i>Itshongonons</i> of the Swazis.	<i>Unza</i> of the Mazubias.
<i>Muzeeloua</i> of the Batongas.	<i>Unzwa</i> of the Makubas.

A male shot by Dr. Percy Rendall, in Nyasaland, measured :

	inches.		inches.
Nose to tail . . . . .	91 $\frac{1}{2}$	Girth of barrel . . . . .	72
Height at shoulder . . . . .	55	„ before hips . . . . .	54
Point of shoulder to nose . . . . .	32	„ of fore-leg . . . . .	14 $\frac{3}{4}$
Length of tail . . . . .	17 $\frac{1}{2}$	„ „ thigh . . . . .	19 $\frac{1}{2}$
Girth of neck (min.) . . . . .	30	„ „ neck (max.) . . . . .	43

Although rather less brilliantly coloured than some of the harnessed antelopes, the kudus are among the handsomest of all antelopes, their spiral horns, striped coat, and noble carriage rendering them really magnificent creatures. Their chief difference from the bushbucks is to be found in the fuller spiral formed by the horns: both sexes being nearly similar in colour. The special characteristics of the greater or true kudu are the large size (height at shoulder reaching to 4 feet 10 inches or 5 feet), the presence of a thick fringe of long hair on the throat, and the open spiral of the horns of the bull. The colour is too well known to require description.

*Distribution.*—The kudu, in suitable localities, ranges over the greater part of Africa south of the Sahara, extending from Abyssinia and Somaliland through East and Central Africa to the Cape, and westward across the continent to Angola, where the Congo apparently forms its northern limits. In spite of its bulk, it is an adept at concealment; and this trait, coupled with its general wariness and acute sense of smell and hearing, has largely contributed to its survival in districts where it is much hunted. Except in the Uitenhage jungles, where it is preserved by English farmers, the kudu has, however, been exterminated from Cape Colony. In Eastern Mashonaland it is still abundant, as it is in the highlands of Somaliland, in which country it is rarely met with on the plains.



Although an adept at getting across rocky hills, this animal is by no means a good performer on the flat (where it seldom allows itself to be surprised), and can be ridden down without much difficulty by a fairly well-mounted hunter.

Horned females occur very rarely ; but three specimens with horns are recorded on p. 302.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
—...	48 $\frac{7}{8}$	...	...	Ngamiland . .	F. H. Barber. (See illustration.)
63	48 $\frac{1}{2}$	12 $\frac{1}{2}$	49	Macloutsie River . .	E. W. Tompson.
-63	44 $\frac{1}{2}$	...	42 $\frac{3}{4}$	Nr. Tete, Zambesi . .	Major P. W. Forbes.
-63	39	10 $\frac{1}{2}$	12	?	Mr. Justice Hopley.
—...	45 $\frac{1}{2}$	...	...	Delagoa Bay . . .	F. H. Barber.
61 $\frac{1}{2}$	-45 $\frac{1}{2}$	...	...	South Africa . .	O. R. Dunell.
60 $\frac{3}{4}$	44 $\frac{1}{2}$	12	29	Do. . . .	Frank Harris.
60 $\frac{5}{8}$	45 $\frac{3}{8}$	11 $\frac{1}{2}$	33	Macloutsie River . .	F. C. Selous.
-60 $\frac{5}{8}$	44	...	31	South Africa . .	H. T. and A. H. Glynn.
-60 $\frac{1}{2}$	47	10 $\frac{1}{2}$	44 $\frac{3}{4}$	Do. . . .	A. Ohlsson.
-60	39	10	7 $\frac{5}{8}$	Lebombo Mountains . .	F. Vaughan Kirby.
-59 $\frac{3}{4}$	45 $\frac{1}{16}$	...	30 $\frac{3}{8}$	Pungwe Valley . .	Major A. St. H. Gibbons.
59 $\frac{1}{4}$	42 $\frac{1}{4}$	11 $\frac{5}{8}$	19	?	G. Richards.
-58 $\frac{3}{4}$	46 $\frac{1}{2}$	11 $\frac{1}{2}$	41 $\frac{3}{4}$	Transvaal . . .	F. Van Zeller.
-58 $\frac{1}{2}$	45	...	46	?	O. R. Dunell.
-58 $\frac{1}{2}$	45	11 $\frac{1}{2}$	44 $\frac{3}{4}$	?	Mr. Justice Hopley.
-58 $\frac{1}{4}$	46	10	39 $\frac{3}{4}$	South Africa . . .	Julius Jeppe.
58	46	11 $\frac{5}{8}$	39	S.E. Mashonaland . .	J. G. Millais.
-58	46	...	...	Zomba, B.C.A. . .	D. MacAlpine.
58	43 $\frac{1}{2}$	10 $\frac{1}{4}$	32 $\frac{1}{2}$	Okavango River . .	Major H. J. Goold-Adams, C.B., C.M.G.
-58	44	11	44	Lebombo Mountains . .	F. Vaughan Kirby.
-58	41	...	...	South Africa . .	Cape Town Museum.
57 $\frac{1}{2}$	41	11 $\frac{1}{8}$	21 $\frac{1}{2}$	N.E. Transvaal . .	A. M. Naylor.
-57 $\frac{1}{2}$	39 $\frac{3}{4}$	11 $\frac{7}{8}$	15	South Africa . . .	Julius Jeppe.
-57 $\frac{3}{8}$	39	9 $\frac{5}{8}$	32	Somaliland . . .	J. Johnston-Stewart.
57 $\frac{1}{4}$	45 $\frac{3}{8}$	10 $\frac{3}{4}$	35	B. C. Africa . . .	H. C. Macdonald.

GREATER KUDU (*Strepsiceros kudu*)—*continued*.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
57 $\frac{1}{2}$	44 $\frac{7}{8}$	11 $\frac{3}{4}$	34 $\frac{3}{8}$	South Africa	Sir Edmund G. Loder, Bart.
57 $\frac{1}{8}$	43	11 $\frac{5}{8}$	34 $\frac{3}{4}$	Mashonaland .	H. and C. Beddington.
57	43	14	32	South Africa .	A. Moseley.
57	42 $\frac{1}{4}$	11	31	Do.	Capt. M. D. Graham.
57	39 $\frac{1}{2}$	9 $\frac{5}{8}$	36 $\frac{1}{2}$	Somaliland .	H. R. H. le Duc d'Orléans.
56 $\frac{1}{2}$	43 $\frac{1}{2}$	11 $\frac{1}{2}$	26 $\frac{1}{2}$	Matabeleland .	W. Van Ness.
56 $\frac{1}{2}$	42 $\frac{5}{8}$	10 $\frac{3}{8}$	38 $\frac{3}{4}$	?	Sir Victor Brooke's Collection.
56 $\frac{1}{2}$	41 $\frac{1}{2}$	10 $\frac{1}{2}$	23 $\frac{3}{4}$	Matabeleland	Hon. C. Greville.
56 $\frac{1}{2}$	38 $\frac{3}{4}$	9 $\frac{1}{2}$	28 $\frac{3}{4}$	Somaliland .	J. Benett-Stanford.
-56 $\frac{1}{2}$	35	10 $\frac{1}{8}$	30	Do.	Sir Edmund G. Loder, Bart.
56 $\frac{1}{4}$	44 $\frac{1}{4}$	11 $\frac{3}{8}$	33 $\frac{1}{4}$	South Africa .	Hon. Walter Rothschild.
56	43	10 $\frac{3}{4}$	43	Mashonaland	F. C. Selous.
56	44	10 $\frac{3}{4}$	39	South Africa .	F. B. Dunsford.
55 $\frac{3}{4}$	41	10 $\frac{3}{4}$	36	Do.	F. Struben.
55 $\frac{1}{2}$	39 $\frac{1}{2}$	10 $\frac{3}{4}$	26 $\frac{1}{2}$	Mashonaland .	A. Neilson.
55 $\frac{1}{2}$	42 $\frac{1}{2}$	11 $\frac{1}{2}$	37	Matabeleland .	Lord Brackley.
55 $\frac{1}{2}$	42 $\frac{1}{2}$	10 $\frac{1}{2}$	38	Do.	Major James Grant.
55 $\frac{1}{4}$	40 $\frac{1}{4}$	11	27 $\frac{3}{4}$	E. C. Africa .	H. S. H. Cavendish.
55	41 $\frac{1}{4}$	11 $\frac{3}{4}$	28	Matabeleland	Major R. Hayes-Sadler.
55	40 $\frac{1}{2}$	12 $\frac{1}{2}$	32 $\frac{1}{2}$	Zululand	C. D. Rudd.
-55	41	10	41	?	The MacLaine of Lochbuie.
54 $\frac{1}{2}$	39 $\frac{1}{4}$	10 $\frac{1}{2}$	27 $\frac{1}{2}$	Upper Shiré, B.C.A.	C. C. Bowring.
54 $\frac{1}{2}$	40 $\frac{1}{2}$	11	21 $\frac{1}{2}$	Mashonaland .	S. Chillingworth.
-54 $\frac{1}{2}$	39	11	27 $\frac{1}{2}$	South Africa .	Dublin Museum.
-54 $\frac{1}{2}$	38 $\frac{1}{4}$	11	26	Do.	Durban Museum.
-54 $\frac{1}{2}$	32 $\frac{1}{2}$	...	...	N. Somaliland	J. Menges.
54 $\frac{1}{4}$	40 $\frac{3}{4}$	10 $\frac{1}{2}$	39 $\frac{1}{2}$	Zululand .	C. H. Akroyd.
-54 $\frac{1}{8}$	38 $\frac{7}{8}$	10 $\frac{1}{4}$	22 $\frac{5}{8}$	Somaliland .	P. H. G. Powell-Cotton.
54	40	10 $\frac{1}{4}$	32	Do.	Captain C. S. Timins.

GREATER KUDU (*Strepsiceros kudu*)—*continued*.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
54	41	11	37 $\frac{1}{2}$	?	Sir Edmund G. Loder, Bart.
54	42	10 $\frac{3}{4}$	35 $\frac{1}{2}$	Zululand . . .	A. Cameron.



Frontlet and Horns of Greater Kudu, from F. H. Barber's specimen.

54	42	11 $\frac{1}{2}$	39 $\frac{3}{4}$	Mashonaland . . .	Earl of Dunmore.
54	40 $\frac{1}{2}$	10 $\frac{1}{2}$	31 $\frac{1}{4}$	South Africa . . .	Dr. W. P. V. Bainbrigge.
54	40	11 $\frac{1}{2}$	24	Do. . .	Lieut.-Col. W. Sitwell.
54	39	10 $\frac{1}{4}$	32	Somaliland . . .	Norman B. Smith.
53 $\frac{1}{2}$	41 $\frac{1}{2}$	10 $\frac{1}{2}$	32 $\frac{1}{2}$	S.W. Somaliland . . .	C. V. A. Peel.

GREATER KUDU (*Strepsiceros kudu*)—*continued*.

On outside curve.	Length. Straight line.	Circumference.	Tip to Tip.	Locality.	Owner.
53 $\frac{3}{8}$	41	10	25	Mashonaland . .	J. A. Jameson.
-53 $\frac{1}{2}$	36 $\frac{1}{2}$	9 $\frac{1}{2}$	23 $\frac{1}{2}$	Somaliland . .	J. Brander Dunbar.
53 $\frac{1}{2}$	39	10 $\frac{3}{8}$	31 $\frac{1}{4}$	Zululand . .	Lieut.-Col. Hon. W. Coke.
-53 $\frac{1}{2}$	40 $\frac{1}{2}$	11 $\frac{1}{2}$	40 $\frac{1}{2}$	Lebombo Mountains .	Count E. Hoyos.
53 $\frac{1}{2}$	37	9 $\frac{5}{8}$	23	Somaliland . .	E. Lort-Phillips.
53	41 $\frac{1}{4}$	10 $\frac{1}{4}$	28 $\frac{3}{4}$	South Africa . .	W. Y. Campbell.
...	40.7	8.8	30.9	Bahr Setit . .	Prince Henry of Liechtenstein.
52 $\frac{7}{8}$	40	10 $\frac{3}{8}$	37	Delagoa Bay . .	Sir John Kirk, K.C.B.
52 $\frac{3}{4}$	39 $\frac{3}{4}$	9 $\frac{7}{8}$	25 $\frac{5}{8}$	Mashonaland . .	Sir John Willoughby, Bart.
-53 $\frac{1}{2}$	36 $\frac{1}{2}$	9 $\frac{1}{2}$	23 $\frac{1}{2}$	Do. . .	J. Brander Dunbar.
52 $\frac{1}{2}$	35 $\frac{1}{2}$	9 $\frac{3}{4}$	22	Somaliland . .	The late W. Babington.
52 $\frac{1}{2}$	37 $\frac{1}{4}$	...	...	Do. . .	Major H. G. C. Swayne.
52 $\frac{3}{8}$	40 $\frac{1}{4}$	10	36 $\frac{1}{2}$	Zululand . .	Major-Gen. Sir Arthur Ellis, K.C.V.O.
52 $\frac{1}{4}$	42	11 $\frac{1}{2}$	35	Natwani River . .	R. J. Cuninghame.
-52 $\frac{1}{2}$	44	11	43 $\frac{3}{4}$	Lebombo Mountains .	Count E. Hoyos.
52 $\frac{3}{8}$	41 $\frac{7}{8}$	10 $\frac{3}{4}$	39 $\frac{5}{8}$	Zululand . .	Hon. Charles Ellis.
52 $\frac{3}{8}$	37 $\frac{1}{2}$	9 $\frac{1}{4}$	23 $\frac{1}{2}$	Somaliland . .	T. W. H. Clarke.
52	42	10 $\frac{3}{8}$	33	South Africa . .	The late W. F. Webb.
52	36 $\frac{1}{2}$	10	39 $\frac{1}{2}$	Somaliland . .	E. N. Buxton.
-52	43 $\frac{5}{8}$	10	39 $\frac{3}{4}$	Damaraland . .	Th. Rehbock.
-52	38 $\frac{3}{4}$	10 $\frac{1}{2}$	35	South Africa . .	James J. Harrison.
-52	38 $\frac{1}{2}$	...	...	Do. . .	C. T. Jones.
51 $\frac{1}{2}$	36 $\frac{1}{2}$	11	29	Zululand . .	A. J. Brandon.
51 $\frac{1}{2}$	39 $\frac{1}{2}$	10	31 $\frac{1}{2}$	Somaliland . .	W. H. Cobb.
51 $\frac{1}{2}$	39 $\frac{3}{4}$	10 $\frac{1}{4}$	28 $\frac{5}{8}$	South Africa . .	W. P. Rylands.
51 $\frac{1}{2}$	38 $\frac{1}{2}$	10	26 $\frac{1}{2}$	British Central Africa .	John Yule.
51 $\frac{1}{2}$	36 $\frac{1}{2}$	11	29	Zululand . .	A. J. Brandon.
51 $\frac{1}{4}$	40 $\frac{1}{2}$	10 $\frac{3}{4}$	28 $\frac{3}{4}$	Mashonaland . .	Col. F. Rhodes, D.S.O.
50 $\frac{3}{4}$	38	9 $\frac{1}{2}$	34	Somaliland . .	J. Benett-Stanford.

GREATER KUDU (*Strepsiceros kudu*)—*continued*.

On outside curve.	Length.		Circumference.	Tip to Tip.	Locality.	Owner.
	Straight line.					
50½	38½	10	36½	Somaliland		Digby Davies.
50½	38	9½	30¾	Do.		Captain G. Campbell.
50½	38	10¾	22¼	South Africa		R. A. Cooper.
...	38	12	36	?		Earl of Dartmouth.
50½	38½	8½	29½	Somaliland		W. D. James.
50½	35	9½	24½	Do.		B. R. M. Glossop.
-50	39	10½	48½	Khama's Country		H. A. Bryden.
50	35	9½	13½	Somaliland		Captain J. M'Call Maxwell.
-50	45	11	37	Abyssinia		Prince de Lucinge.
50	37½	10	28¾	South Africa		E. D. Scott.
49½	39½	10½	40½	Limpopo River		R. M. Sagar-Musgrave.
49¾	40¼	9½	33¾	Zomba, B.C.A.		C. C. Bowring.
-49½	37¾	10½	19½	Somaliland		C. V. A. Peel.
49½	36	9½	31¼	Do.		Major C. F. Blane.
49½	40½	11½	47	Matabeleland		Hon. John Ward.
49	38	8½	29¾	Somaliland		C. Liddell.
-49	39	11¾	25	Nyasaland		Alex. R. Alston.
48½	38	10	32	Sabi River		Sir Thomas Fowler, Bart.
48	37	10½	27¾	British Central Africa		Commander A. T. Hunt.
48	35½	10	31	Somaliland		R. McD. Hawker.
48	35	10½	30	Do.		W. W. Ashley.
-48	...	10	33½	Do.		A. E. Pease.
47½	35¾	9½	24½	Do.		A. H. Straker.
47½	36½	10¼	27½	South Africa		British Museum.
47½	35½	9½	26½	Somaliland		Prince Nicolas Ghika.
47½	35	8½	38¾	Sudan		Col. Ralph Vivian.
47¼	37½	10¼	35½	South Africa		H. R. H. the Duke of Saxe-Coburg and Gotha.
47¼	34¾	9½	25	Somaliland		Lord Delamere.
47½	34½	10	21	Do.		Major C. C. Ellis.

GREATER KUDU (*Strepsiceros kudu*)—*continued*.

Length.		Circum- ference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
47	35 $\frac{3}{4}$	10 $\frac{1}{2}$	33 $\frac{1}{2}$	Somaliland .	J. Kenneth Foster.
47	35 $\frac{3}{4}$	10	31	Do. . .	T. W. Greenfield.
47	35 $\frac{1}{2}$	10 $\frac{1}{2}$	31 $\frac{1}{4}$	Do.	P. B. Vander-Byl.
47	35	8 $\frac{3}{4}$	23 $\frac{1}{4}$	Do.	Captain B. L. Carew.
46 $\frac{3}{4}$	37 $\frac{1}{2}$	9 $\frac{3}{4}$	39 $\frac{1}{4}$	Do.	F. G. Gunnis.
46 $\frac{1}{2}$	34 $\frac{3}{4}$	10	25 $\frac{1}{4}$	Sudan .	Lieut.-Col. Hon. W. Coke.
46 $\frac{1}{2}$	34 $\frac{1}{2}$	9 $\frac{1}{2}$	...	Abyssinia .	British Museum.
46 $\frac{1}{2}$	33 $\frac{1}{4}$	9 $\frac{1}{2}$	24 $\frac{1}{2}$	Somaliland .	Major H. G. C. Swayne.
46 $\frac{1}{2}$	34 $\frac{1}{2}$	10	31	Do. . .	P. R. Denny.
46 $\frac{1}{2}$	38	10 $\frac{3}{4}$	41 $\frac{1}{4}$	Do. . . .	A. J. Forbes.
46	36	9 $\frac{3}{4}$	27 $\frac{3}{8}$	Do.	G. H. Cheetham.
-46	36	9 $\frac{1}{2}$	16	Do.	Count Scheibler.
-45 $\frac{7}{8}$	33 $\frac{5}{8}$	9 $\frac{1}{8}$	25 $\frac{5}{8}$	Sudan .	Count T. Palffy.
45 $\frac{1}{2}$	31 $\frac{1}{8}$	9 $\frac{1}{2}$	18 $\frac{1}{2}$	Somaliland	Lord Delamere.
-45 $\frac{3}{8}$	34 $\frac{1}{4}$	9 $\frac{1}{2}$	11 $\frac{1}{16}$	Do.	Paris Museum.
45	35	9 $\frac{3}{8}$	32 $\frac{1}{8}$	Kaokoland .	Captain F. Cookson.
43 $\frac{1}{2}$	34 $\frac{1}{2}$	9 $\frac{3}{4}$	29	Benguela .	G. W. Penrice.
♀ 37	10	...	...	South Africa .	F. C. Selous.
♀ 27 $\frac{1}{2}$	...	3 $\frac{3}{4}$	8 $\frac{3}{4}$	Do. .	Julius Jeppe.
♀ See <i>Field</i> , 4th February 1893				Do. . . .	F. C. Selous.
- ♀ 26 $\frac{3}{4}$	...	...	36	?	C. T. Jones.



Head of Lesser Kudu, from a specimen shot by Mr. Norman B. Smith.

**LESSER KUDU** (*Strepsiceros imberbis*).

*Godir* of the Somalis.                      *Sara* of the Abyssinians of Danakil.  
*Kungu* of the Swahilis.

An old male shot by Viscount Edmond de Poncins, 18th Nov. 1897,  
 Digago, Somaliland, measured as follows :—

	inches.
From nose to root of tail . . . . .	67
Tail . . . . .	$11\frac{7}{8}$
Height at withers . . . . .	$41\frac{3}{8}$
Round the body . . . . .	41
„ neck . . . . .	$20\frac{1}{2}$

Except for its brighter colour, the closer spiral and smaller divergence of the horns, and the absence of a fringe of long hair on the throat (whence the name *imberbis*), this beautiful little antelope might almost pass for a miniature of its larger relation. Height at shoulder about 3 feet 5 inches.

*Distribution.*—North-East Africa, from Somaliland to German and British East Africa. This antelope generally goes in pairs or threes, and is partial to the cover of thick bush, from which it seldom emerges except for the purpose of feeding. Till the opening up of its habitat, it was very rare in collections.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
35½	26½	7½	16½	N. Somaliland	Norman B. Smith. (See illustration.)
34	26½	...	...	Do.	Major H. G. C. Swayne.
34	26	6½	14½	Do.	W. W. Ashley.
34	27	6½	11	Do.	R. McD. Hawker, British Museum.
33	26	7½	9½	Do.	Norman B. Smith.
32½	25½	7	8	Somaliland	Capt. T. R. Harkness.
32½	25½	7	17	Do.	Sir Edmund G. Loder, Bart.
-32	26	6½	10½	Hawash, Abyssinia	Prince de Lucinge.
-31⅞	25⅞	...	11⅞	N. Somaliland	J. Menges.
31½	24½	6½	14½	Do.	Lord Delamere.
31½	25½	6⅞	11⅞	Do.	Sir John Kirk, K.C.B.
-31½	24	6½	12	Do.	T. W. H. Clarke.
31½	24	6½	...	Do.	Major C. C. Ellis.
31½	25	7	10	Do.	Capt. G. F. T. Leather.
31½	24½	6½	14½	Do.	Major H. G. C. Swayne.
31	25	7½	9½	Do.	W. H. Cobb.
31	24	6½	9½	Do.	G. H. Cheetham.
-30½	25	6½	9½	Do.	Viscount Edmond de Poncins.
30½	24½	6½	11⅞	Do.	W. D. James.
30½	24	6⅞	9	Do.	E. P. Hare.
30½	25½	6⅞	11½	Do.	A. H. Straker.
-30½	23	6½	8½	Teita, East Africa	E. Gedge.
-30½	24	6	12½	Somaliland	T. W. H. Clarke.
30½	24½	6½	10½	Do.	Lord Delamere.
-...	24	...	...	Do.	Bombay Natural History Society's Museum.



LESSER KUDU (*Strepsiceros imberbis*)—*continued.*

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
30 $\frac{1}{4}$	24	6 $\frac{5}{8}$	11 $\frac{7}{8}$	Somaliland	H.R.H. le Duc d'Orléans.
-30	25 $\frac{1}{2}$	7	14	Do.	Capt. M. M'Neill.
29 $\frac{3}{4}$	22 $\frac{1}{2}$	6 $\frac{3}{4}$	13 $\frac{1}{4}$	Do.	R. Wahrmann.
-29 $\frac{3}{4}$	21 $\frac{1}{2}$	6 $\frac{1}{2}$	10 $\frac{1}{2}$	Do.	Count J. de Bylands.
29 $\frac{1}{2}$	23	6 $\frac{1}{2}$	13 $\frac{3}{4}$	Do.	Prince Demeter Ghika.
29 $\frac{3}{8}$	22 $\frac{1}{2}$	6 $\frac{3}{4}$	13 $\frac{7}{8}$	Do.	E. Lort-Phillips.
-29 $\frac{1}{4}$	25	7	12 $\frac{3}{4}$	Do.	A. H. Straker.
29	23 $\frac{1}{2}$	6 $\frac{3}{4}$	13 $\frac{1}{2}$	Do.	J. Kenneth Foster.
29	23 $\frac{1}{2}$	6 $\frac{1}{2}$	11 $\frac{1}{8}$	East Africa	Sir Robert Harvey, Bart.
-29	22	6 $\frac{1}{2}$	12	Somaliland	A. Ohlsson.
29	23 $\frac{1}{2}$	6	12 $\frac{1}{2}$	Do.	R. McD. Hawker.
28 $\frac{7}{8}$	21 $\frac{7}{8}$	6 $\frac{1}{2}$	9	East Africa	H. C. V. Hunter.
28 $\frac{3}{4}$	22 $\frac{1}{2}$	6 $\frac{3}{4}$	11	Somaliland	Sir H. D. Tichborne, Bart.
28 $\frac{3}{4}$	21 $\frac{1}{2}$	5	9	East Africa	Sir Edmund G. Loder, Bart.
28 $\frac{3}{4}$	22	6 $\frac{1}{4}$	13	Somaliland	R. McD. Hawker.
-28 $\frac{5}{8}$	23	7	11	Do.	Dr. Percy Rendall.
28 $\frac{1}{2}$	23 $\frac{1}{4}$	7 $\frac{1}{8}$	10	Do.	T. W. Greenfield.
-28 $\frac{1}{4}$	20 $\frac{1}{2}$	7	13 $\frac{1}{2}$	Do.	Count E. Hoyos.
28 $\frac{1}{8}$	23	5 $\frac{1}{2}$	11 $\frac{5}{8}$	Do.	Sir John Kirk, K.C.B., British Museum.
...	23	6 $\frac{3}{4}$	10 $\frac{3}{4}$	Do.	Col. Arthur Paget.
28	23	...	15	Do.	Lieut.-Col. J. W. H. Flanagan.
28	23	6 $\frac{1}{2}$	11 $\frac{1}{4}$	Do.	P. B. Vander-Byl.
28	22	6 $\frac{3}{4}$	9 $\frac{1}{2}$	Do.	Captain C. H. Villiers.
28	22	6 $\frac{3}{4}$	13 $\frac{1}{2}$	Do.	Dr. Donaldson Smith.
27 $\frac{3}{4}$	24	6 $\frac{1}{2}$	11	Do.	Ford G. Barclay.
...	-24	6 $\frac{3}{4}$	13 $\frac{1}{2}$	Do.	C. V. A. Peel.
27 $\frac{1}{4}$	21 $\frac{5}{8}$	6 $\frac{1}{2}$	12 $\frac{3}{4}$	South Somaliland	Sir John Kirk, K.C.B.
27 $\frac{1}{4}$	22	6 $\frac{1}{4}$	7	Somaliland	Hon. Walter Rothschild.
-27	...	6 $\frac{1}{2}$	13	Do.	A. E. Pease.

LESSER KUDU (*Strepsiceros imberbis*)—*continued*.

Length.		Circum- ference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
-26 $\frac{1}{8}$	24	6 $\frac{3}{4}$	13	Somaliland	Prince Demeter Ghika.
26 $\frac{3}{4}$	19 $\frac{3}{4}$	6 $\frac{1}{4}$	10 $\frac{1}{2}$	Do.	Edinburgh Museum.
26 $\frac{1}{2}$	22	6	14	Do.	Captain C. S. Timins.
26 $\frac{1}{4}$	21 $\frac{3}{4}$	6 $\frac{1}{2}$	12 $\frac{5}{8}$	Do.	Major H. C. Morland.
26 $\frac{1}{8}$	21 $\frac{1}{2}$	6 $\frac{1}{2}$	12 $\frac{3}{4}$	Do.	F. G. Gunnis.
-25 $\frac{3}{4}$	21 $\frac{1}{4}$	6 $\frac{1}{2}$	12 $\frac{3}{4}$	Do.	Count Scheibler.
-...	21	...	...	Do.	J. D. Inverarity.
-25 $\frac{5}{8}$	20 $\frac{5}{8}$	6 $\frac{3}{8}$	11	Do.	Paris Museum.
-25	21 $\frac{3}{4}$	6 $\frac{1}{2}$	10 $\frac{1}{2}$	Do.	Digby Davies.
24 $\frac{3}{4}$	19 $\frac{1}{4}$	5 $\frac{3}{4}$	9 $\frac{3}{4}$	Do.	Captain W. H. Williamson.
24	20	6	14	East Africa	W. Astor Chanler.
-24	19	6	14 $\frac{1}{2}$	Somaliland	J. Brander-Dunbar.
-24	20 $\frac{3}{4}$	5 $\frac{1}{2}$	9 $\frac{1}{2}$	Do.	Julius Jeppe.



Head of Cow Eland shot by F. C. Selous.

**ELAND (*Taurotragus oryx*).***Doo* of the Masaras.*Mofu* of the Mashonas.*Ee-pofu* of the Makalakas.*Mpofu* of Swahili.*Eland* of the Dutch and English.*Mpofu* in the Barotse country.*Impofu* of the Amandebele.*Mpofu* in the Lake Ngami country.*Insefu* of the Masubias and  
Batongas.*Oo-schefo* of the Macubas.*Pofu* of the Bechuanas.*Tsefu* in the Chilala and Chibisa countries.

In addition to being the largest of all antelopes, eland are distinguished from their immediate relatives by the presence of horns in both sexes; these forming a close spiral like a screw, with an upward and outward direction. Female horns are more slender than those of the bulls. Other distinctive features of the genus are to be found in the large dewlap and the long, tufted, ox-like tail.

Bulls of the common eland stand from 5 feet 9 inches to as much as  $6\frac{1}{2}$  feet at the shoulder. They have a large tuft of brown hair on the forehead, and the horns are of moderate length and stoutness. The typical race (*T. oryx typicus*), which formerly extended from the Cape nearly to the Zambesi, has a uniformly tawny skin, without transverse white stripes or a dark brown band above the knees; and appears to be the largest form. Apparently somewhere in Rhodesia a dark brown band is assumed by immature bulls. And as we go northward towards the Zambesi, and thence north and east into the heart of the continent, the bulls have not only this dark leg-band, but the body in both sexes is marked by fine vertical white lines. As this striped variety was discovered by Livingstone and his companions, it has been appropriately named *T. oryx livingstonianus*. Westward the species ranges into Angola.

Throughout Southern Africa, largely owing to the skin-hunters, eland are now becoming exceedingly scarce; and they have already more or less completely disappeared from Cape Colony, Natal, the Orange Free State, Griqualand West, and the Transvaal. In the northern Kalahari, where they subsist for a great part of the year without water, large herds are still to be met with. No species of large game is more easily approached than eland, and, as a rule, none succumbs more speedily to the bullet. Occasionally female eland develop horns in which the spiral is almost obsolete and the length exaggerated; these have been supposed to indicate a distinct species (*Antilope triangularis*).



Head of Bull Eland.

ELAND (*Taurotragus oryx*)—*continued*.

Length straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
— ♀ 35 $\frac{9}{10}$	8 $\frac{9}{10}$	20 $\frac{1}{10}$	Zomba Plain, B.C.A. .	Dr. Percy Rendall.
— ♀ 33 $\frac{1}{2}$	...	...	?	F. H. Barber.
♀ 32 $\frac{1}{4}$	6 $\frac{3}{4}$	...	Near Chobe River	M. C. Greaves-Bagshawe.
<sup>1</sup> — ♀ 32 $\frac{1}{2}$	6 $\frac{3}{4}$	5 $\frac{3}{4}$	South Africa	Julius Jeppe.
— 32 $\frac{1}{4}$	...	...	?	Carl Hagenbeck.
<sup>1</sup> ♀ 32 $\frac{1}{8}$	7 $\frac{1}{8}$	8 $\frac{3}{4}$	?	Mr. Justice Hopley.
— 32	...	...	?	J. Benett-Stanford.
31 $\frac{3}{4}$	12 $\frac{1}{4}$	22 $\frac{3}{4}$	?	Hon. Walter Rothschild.
♀ 31 $\frac{3}{4}$	7 $\frac{3}{4}$	17	Matabeleland .	Major R. Hayes-Sadler.
♀ 31 $\frac{3}{4}$	7 $\frac{1}{2}$	15 $\frac{1}{2}$	?	F. Struben.
♀ 31 $\frac{3}{4}$	7 $\frac{1}{2}$	18 $\frac{1}{2}$	Mashonaland	S. Chillingworth.
31 $\frac{5}{8}$	10 $\frac{1}{4}$	25 $\frac{1}{2}$	East Africa. .	F. J. Jackson, C.B.
31 $\frac{1}{2}$	12 $\frac{3}{4}$	12 $\frac{1}{2}$	Near where Salisbury now stands	F. C. Selous, British Museum.
♀ 31 $\frac{1}{2}$	8 $\frac{1}{2}$	20 $\frac{3}{8}$	Mashonaland . .	Do.
— ♀ 31 $\frac{1}{4}$	7	17 $\frac{1}{4}$	?	Julius Jeppe.
31	13	12	Mashonaland . .	F. C. Selous.
— 31	9 $\frac{1}{2}$	21	Nyasaland . .	F. Vaughan Kirby.
— ♀ 31	...	...	?	J. Benett-Stanford.
— 30 $\frac{3}{4}$	11 $\frac{1}{2}$	28 $\frac{3}{4}$	Nyasaland . .	Major P. W. Forbes.
30 $\frac{3}{4}$	8 $\frac{1}{2}$	25	?	R. A. Cooper.
♀ 30 $\frac{5}{8}$	7 $\frac{1}{2}$	21 $\frac{3}{4}$	Lake Ngami . .	Major H. J. Goold-Adams, C.B., C.M.G.
— 30 $\frac{1}{2}$	...	...	?	O. R. Dunell.
♀ 30	7 $\frac{1}{4}$	20 $\frac{1}{4}$	Hanyani River . .	Capt. M. D. Graham.
— 29 $\frac{3}{4}$	9 $\frac{1}{2}$	9	British Central Africa .	H. C. Macdonald.
— 29 $\frac{3}{4}$	9 $\frac{1}{2}$	9	Do.	Dr. Percy Rendall.
29 $\frac{1}{2}$	8	22	Do.	Commander A. T. Hunt.
29 $\frac{1}{2}$	7 $\frac{1}{2}$	8	S. Africa .	C. D. Rudd.
— 29 $\frac{1}{4}$	15 $\frac{1}{2}$	12 $\frac{3}{4}$	Do. .	A. Ohlsson.
— ♀ 29 $\frac{1}{4}$	8 $\frac{1}{2}$	17	Do.	Mr. Justice Hopley.

<sup>1</sup> The so-called *A. triangularis*.

ELAND (*Taurotragus oryx*)—*continued*.

Length straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
29	10	17	Near Lake Ngami	Major H. J. Goold-Adams, C.B., C.M.G.
♀ 29	7½	18½	Matabeleland	Hon. C. Greville.
29	12½	14	Do.	Abe Bailey.
29	8½	13½	Benguela	G. W. Penrice.
-29	...	...	Pungwe	Count E. Hoyos.
28¾	13½	4½	Matabeleland	W. Van Ness.
28¾	11½	24	?	F. Struben.
♀ 28½	7¾	6½	Kalahari	H. A. Bryden.
28½	11½	8¾	British Central Africa	Rowland Ward.
28½	11	18¾	Barotseland	R. T. Coryndon.
28½	10¾	12½	?	Sir Edmund G. Loder, Bart.
28	10½	19½	British Central Africa	J. E. Gough.
28	12	19	Upper Shiré, B.C.A.	C. C. Bowring.
-28	8½	15½	E. C. Africa	James J. Harrison.
-♀ 28	...	...	?	Cape Town Museum.
♀ 28	8½	19½	Barotseland	R. T. Coryndon.
27¾	11	16	Mashonaland	Sir John Willoughby, Bart.
27½	10½	18	B. E. Africa	Lord Delamere.
27½	11¾	12½	?	R. A. Cooper.
-♀ 27½	7½	16	?	James J. Harrison.
♀ 27½	8½	5	Rhodesia	W. W. Ashley.
27½	8¾	10	Matabeleland	Capt. Sir K. Fraser, Bart.
27¼	11	15¼	Pungwe	P. B. Vander-Byl.
♀ 27¼	13	20	Matabeleland	Major James Grant.
-♀ 27	...	10	East Africa	Sir John Willoughby, Bart.
27	11	10¾	Pungwe	Marquis of Hamilton.
27	11½	13	Do.	F. J. Mitchell.
♀ 26	7¾	13¼	East Africa	Lord Delamere.
26	8½	10½	Kaokaland	Capt. F. Cookson.



Frontlet and Horns of Senegambian Eland, from the Gambia.

**SENEGAMBIAN ELAND (*Taurotragus derbianus*).**

Although living specimens appear formerly to have been in the collection at Knowsley, this magnificent species is chiefly known in England by the horns. These are longer and stouter than those of the common species, and thus confirm the statements as to the larger size of the western animal. The bulls are reported to have no dark fore-lock, but a dark-brown mane. Horns of cows are relatively small.

*Distribution.*—The open districts of the interior of Senegambia and Gambia.



SENEGAMBIAN ELAND (*Taurotragus derbianus*)—*continued*.

Length straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-40	13½	Single horn	?	Berlin Museum.
-39⅞	...	...	?	Paris Museum.
34½	14⅞	22¾	Gambia	Sir Edmund G. Loder, Bart.
-34	13½	...	?	F. Coburn.
34	12¾	...	?	J. Carr Saunders.
-34	11½	17	Gambia	Dublin Museum.
32½	12½	29⅞	Do.	A late Earl of Derby, British Museum.
32½	9½	12¾	?	Sir Edmund G. Loder, Bart.
32½	13	23½	Gambia	H.R.H. le Duc d'Orléans.
32	13	24½	?	Hon. Walter Rothschild.
31⅞	11⅝	28⅝	Gambia	A late Earl of Derby, British Museum.
31½	12½	15½	Do.	H. C. Goddard.
31⅞	12	18⅝	?	Sir Victor Brooke's Collection.
-31	11½	...	Gambia	Sir R. B. Llewelyn, K.C.M.G.
30⅞	10¾	26¾	?	F. W. Reade, British Museum.
-27⅞	13⅞	23⅝	Senegambia	Paris Museum.
24½	9	6½	Do.	F. W. Reade, British Museum.



Frontlet and Horns of Count Arpad Teleki's Chamois.

### CHAMOIS (*Rupicapra tragus*).

With the chamois we take leave of the antelopes properly so-called, and come to a group connecting the former to a considerable extent with the true goats, one member of the group being indeed commonly designated the Rocky Mountain goat. Most of these ruminants are more or less goat-like in general appearance, having narrow goat-like teeth and short or moderately long tails. Their horns, which are black in colour, are, however, quite distinct from those of the goats, being for the most part cylindrical in section, and curving backwards. From the other members of the group the chamois is at once distinguished by the sharp hook formed by the backward curvature of the horns, which rise almost vertically from the head. The coloration is too well known to need description, although attention may be directed to the dark streak running from the eye to the sides of the muzzle. Height at shoulder reaching 32 inches; weight of male generally about 65 lbs. (although 125 lbs. has been recorded in one case), that of female from 45 to 50 lbs.

*Distribution.*—The mountains of Central and Southern Europe, from the Pyrenees to the Caucasus. Probably three distinct races may be recognised, namely, the comparatively small izard of the

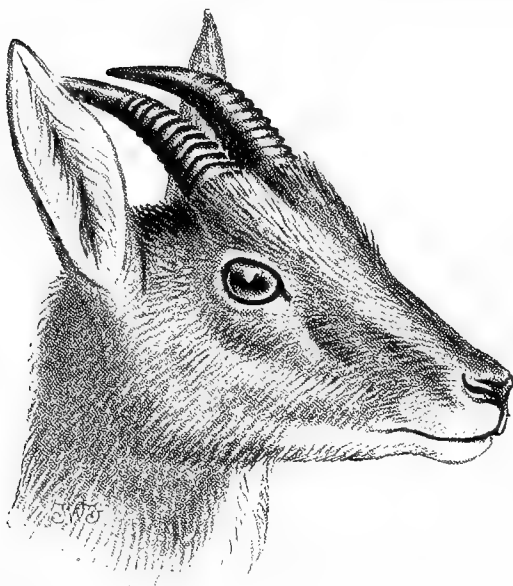
Pyrenees, the true chamois, or gems, of the Alps, and a third form in the Caucasus.

Length on front curve.	Circumference.	Tip to Tip.	Weight.	Locality.	Owner.
<sup>1</sup> -12 $\frac{1}{2}$	4 $\frac{1}{2}$	...	123 $\frac{1}{2}$ lbs. not clean	Retyezat, Carpathians	Count Arpad Teleki. (See illustration.)
-12	...	9 $\frac{1}{2}$	103 lbs. clean	Tyrol . . .	W. A. Baillie-Grohman.
-12	4	...	...	Hinter Riss . . .	H.R.H. the Duke of Saxe-Coburg and Gotha.
-12	...	...	...	Tyrol . . .	Count Arco.
-11 $\frac{1}{2}$	3 $\frac{5}{8}$	6 $\frac{7}{8}$	...	Albreis Morteratch, Engadine	A. E. Pease.
11 $\frac{1}{2}$	3 $\frac{1}{2}$	6 $\frac{1}{2}$	...	?	Col. Howard.
-11 $\frac{1}{2}$	...	4 $1\frac{5}{8}$	...	Retzezah, Transylvania	Baron A. Nopcsa.
-11	4	...	...	Tyrol . . .	W. A. Baillie-Grohman.
-11	3 $\frac{3}{4}$	5 $\frac{1}{2}$	...	?	Count John of Meran.
10 $\frac{3}{4}$	3 $\frac{1}{2}$	4 $1\frac{3}{10}$	...	Tyrol . . .	Sir Edmund G. Loder, Bart.
10 $\frac{3}{4}$	3 $\frac{1}{2}$	4 $1\frac{3}{10}$	...	Do. . . .	Do.
-10 $\frac{3}{4}$	3 $\frac{3}{4}$	7 $\frac{1}{2}$	...	?	Eberhard Hollinek.
-10 $\frac{1}{2}$	3 $\frac{1}{2}$	5 $\frac{3}{8}$	...	Austria . . .	H.R.H. the Duke of Braganza.
-10 $\frac{1}{2}$	2 $\frac{3}{4}$	5	...	?	Count John of Meran.
-10 $\frac{3}{8}$	3	4 $\frac{1}{8}$	...	?	Marquis Ivrea.
10 $\frac{1}{2}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	...	?	E. N. Buxton.
10 $\frac{1}{2}$	4 $\frac{1}{8}$	3 $\frac{7}{8}$	...	Tyrol . . .	Sir Edmund G. Loder, Bart.
-10 $\frac{1}{2}$	3	5 $\frac{3}{8}$	...	?	Count Palffy.
-10 $\frac{1}{2}$	...	...	...	Transylvania . . .	C. G. Danford.
-9 10 $\frac{1}{2}$	...	...	...	Grindelwald . . .	F. A. Labouchere.
10 $\frac{1}{8}$	3 $\frac{1}{4}$	4 $\frac{1}{2}$	...	Austrian Tyrol	G. A. Goldschmidt.
10	3 $\frac{5}{8}$	4 $\frac{3}{4}$	...	Transylvania	J. G. K. Young.
-10	...	...	...	Grindelwald . . .	F. A. Labouchere.
9 $\frac{7}{8}$	3 $\frac{1}{4}$	4 $\frac{1}{2}$	...	Tyrol . . .	H.R.H. the Duke of Saxe-Coburg and Gotha.
9 $\frac{3}{4}$	3 $\frac{1}{4}$	3 $\frac{7}{8}$	...	Transylvania . . .	C. G. Danford, British Museum.
9 $\frac{3}{4}$	3 $\frac{3}{4}$	3	...	W. Caucasus . . .	St. George Littledale.

<sup>1</sup> Greatest width, 7 $\frac{1}{2}$  inches.

CHAMOIS (*Rupicapra tragus*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
9 $\frac{5}{8}$	3 $\frac{1}{4}$	4 $\frac{1}{2}$	Caucasus	St. George Littledale.
9 $\frac{5}{8}$	3 $\frac{1}{2}$	4	Austrian Tyrol	Capt. R. A. J. Montgomerie, C.B., R.N.
9 $\frac{5}{8}$	3	3 $\frac{5}{8}$	?	Hon. Walter Rothschild.
-9 $\frac{5}{8}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	Valtelline Alps	Major C. C. Ellis.
-9 $\frac{1}{2}$	3	3 $\frac{1}{2}$	Alps	Dublin Museum.
9.05	3.15	4.75	Savoy	Viscount Edmond de Poncins.
9 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{2}$	W. Caucasus	St. George Littledale.
-9 $\frac{1}{4}$	2 $\frac{3}{8}$	3 $\frac{1}{2}$	Austria	H. Brinsley Brooke.
9	3	5 $\frac{1}{4}$	Pyrenees	Sir Victor Brooke's Collection.
9	3 $\frac{1}{4}$	4	Tyrol	Julius Jeppe.
♀ 9	2 $\frac{3}{4}$	4 $\frac{1}{2}$	Styria	Major-Gen. Sir Arthur Ellis, K.C.V.O.
-9	3 $\frac{1}{2}$	2 $\frac{3}{4}$	Valtelline Alps	Count Scheibler.
9	3	3 $\frac{3}{4}$	Zillerthall	Noel Fenwick.
8 $\frac{3}{4}$	3 $\frac{3}{8}$	4 $\frac{1}{8}$	Austrian Tyrol	Major-Gen. Sir Arthur Ellis, K.C.V.O.
8 $\frac{3}{4}$	3 $\frac{3}{8}$	3	Caucasus	St. George Littledale.
8 $\frac{3}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	Austria	P. B. Vander-Byl.
8 $\frac{3}{4}$	3	4 $\frac{1}{4}$	Caucasus	Prince Demidoff.
8 $\frac{5}{8}$	3 $\frac{1}{2}$	2 $\frac{3}{8}$	Do.	St. George Littledale.
♀ 8 $\frac{5}{8}$	...	3 $\frac{1}{8}$	Bavaria 1870	F. C. Selous.
8 $\frac{1}{2}$	2 $\frac{5}{8}$	4	Alps	The late J. Gould, British Museum.
♀ 8 $\frac{3}{8}$	2 $\frac{1}{4}$	4 $\frac{3}{8}$	Pyrenees	Sir Victor Brooke's Collection.
8 $\frac{1}{4}$	3 $\frac{1}{8}$	3 $\frac{3}{8}$	?	Sir Clement Hill, Bart.
♀ 8 $\frac{1}{8}$	3	2	Caucasus	St. George Littledale.
8	2 $\frac{5}{8}$	...	Asturias	H. Brinsley Brooke.
8	2 $\frac{1}{2}$	1 $\frac{1}{2}$	Caucasus	Prince Demidoff.
♀ 7 $\frac{1}{2}$	2 $\frac{1}{2}$	7 $\frac{7}{8}$	Do.	Do.



Head of Himalayan Goral. From a specimen shot in Nepal, in the British Museum.

**HIMALAYAN GORAL** (*Cemas goral*).

*Goral* of the W. Himalaya.

*Pj, Pjar, Rai, Rom* of Kashmir.

*Sáhare, Sarr* of the Sutlej valley.

The gorals are near relatives of the serows, from which they may be distinguished by their inferior size, shorter horns, and absence of face-glands, as well as by certain differences in the conformation of the skull. The horns curve regularly backwards, are conical in form, and marked by small irregular ridges for the greater part of their length. The hair is somewhat rough and shaggy, and the tail considerably longer than in the chamois. In general colour the Himalayan goral is brown, tending more or less to rufous or grayish, with the face paler and rufescent, a black line from the nape down the back to the tail (which is also black), and a dark stripe down the front of each leg. Height at shoulder from 26 to 28 inches; weight from 58 to 63 lbs.

By English sportsmen the goral is commonly termed the Himalayan chamois, its habits being very similar to those of the true chamois.

*Distribution*.—The Himalaya, from Bhutan and Sikim to Kashmir, at elevations from 3000 to 6000 feet.

**HIMALAYAN GORAL** (*Cemas goral*)—*continued*.

Length on front curve.	Girth.	Tip to Tip.	Locality.	Owner.
-8 $\frac{1}{2}$	...	...	Bissahir .	Major A. E. Ward.
♀ -8 $\frac{1}{2}$	...	...	Dalhousie	J. Johnston-Stewart.
-8	...	...	Kumaon	Major A. E. Ward.
-8	...	...	Chamba	Capt. C. B. Vandeleur.
8	3 $\frac{3}{4}$	3 $\frac{1}{8}$	Do.	Capt. Cecil Levita.
7 $\frac{5}{8}$	3 $\frac{3}{4}$	3 $\frac{1}{2}$	?	Hume Collection, British Museum.
7 $\frac{1}{2}$	3	2 $\frac{3}{4}$	Near Musuri	A. O. Hume, C.B.
-7 $\frac{1}{2}$	...	...	Mountains near Dalhousie .	Capt. F. E. S. Adair.
7 $\frac{7}{8}$	3 $\frac{1}{2}$	2 $\frac{3}{4}$	Chamba	A. H. Ogilvy Spence.
7 $\frac{1}{4}$	3	3	Do.	F. W. H. Walshe.
7 $\frac{1}{8}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	Do.	Sir Edmund G. Loder, Bart.
-7 $\frac{1}{8}$	3 $\frac{3}{4}$	3 $\frac{5}{8}$	Jhelam Valley, Kashmir	P. H. G. Powell-Cotton.
7	2 $\frac{3}{4}$	3 $\frac{3}{4}$	?	Major J. A. Orr-Ewing.
-7	3 $\frac{1}{4}$	3 $\frac{1}{8}$	?	Capt. H. W. Codrington.
-7	...	...	Near Almora, N.W.P.	Capt. B. H. Boucher.
-7	...	...	?	Indian Museum.
-7	...	...	Punjab	Capt. A. Hicks-Beach.
6 $\frac{7}{8}$	4 $\frac{1}{8}$	3	Kumaon	A. S. Crum.
6 $\frac{7}{8}$	3 $\frac{1}{2}$	2 $\frac{7}{8}$	?	Owen Bevan.
-6 $\frac{3}{4}$	...	...	?	Major R. H. Rattray.
6 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{1}{8}$	?	Capt. H. C. Copeman.
-6 $\frac{3}{4}$	3 $\frac{1}{2}$	2	Dalhousie . .	J. Johnston-Stewart.
6 $\frac{5}{8}$	3 $\frac{3}{8}$	2 $\frac{3}{8}$	?	Dr. W. P. Y. Bainbrigge.
6 $\frac{1}{2}$	3 $\frac{3}{8}$	3 $\frac{1}{4}$	West of Musuri . .	B. R. M. Glossop.
6 $\frac{1}{4}$	3	4 $\frac{1}{8}$	?	Capt. L. I. B. Hulke.
6	4	2 $\frac{3}{4}$	?	J. E. Vaughan.
-♀ 5 $\frac{1}{2}$	2 $\frac{1}{2}$	1 $\frac{3}{4}$	Jhelam Valley, Kashmir	P. H. G. Powell-Cotton.
♀ 4 $\frac{3}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	?	E. L. Phelps.

## OTHER GORALS.

Species.	Collected by	Length on front curve.	Girth.	Tip to Tip.	Locality.	Owner.
Cemas edwardsi	Père A. David	$8\frac{1}{8}$ $8\frac{6}{10}$	$7\frac{1}{2}$ $7\frac{1}{8}$	4 2	Moupin, Tibet	Paris Museum.
„ argyrochoetus	Do.	$9\frac{1}{2}$	$7\frac{1}{8}$	4	Ta - tsien - lou, Szechuan	Do.
„ caudatus	Do.	$6\frac{6}{10}$ $6\frac{1}{2}$	$3\frac{9}{10}$ 4	$3\frac{1}{8}$ $3\frac{1}{2}$	North of Pekin ?	Do. British Museum.
„ cinereus	Do.	$7\frac{1}{2}$	$3\frac{1}{8}$	$3\frac{6}{10}$	Tibet	Paris Museum.
„ griseus	Do.	$4\frac{3}{4}$	$3\frac{1}{8}$	$2\frac{3}{8}$	Do.	Do.

JAPANESE SEROW or GORAL (*Nemorhædus crispus*).

A small species serving in some degree to connect the gorals with the serows, since it agrees approximately in size with the former, but in other characters with the latter.

*Distribution*.—The southern islands of Japan ; an allied species (*N. swinhoei*) inhabiting the island of Formosa.

Length on front curve.	Circum- ference.	Tip. to Tip.	Locality.	Owner.
$5\frac{1}{4}$	$3\frac{1}{8}$	$3\frac{1}{8}$	Japan	British Museum.



Skull and Horns of Himalayan Serow (A. O. Hume's record specimen).

**HIMALAYAN SEROW** (*Nemorhædus bubalinus*).

*Serow, serowa* of Gurhwal and many parts of the Himalaya.

*Ramu-Halj*, Sálábheer.

*Jungal*, Kangra.

*Yamu*, Kulu.

*Goa*, Chamba.

*Aimu*, Kumaon.

A large and clumsily built ruminant, with the ears long, the hair coarse, rather thin, and elongated into a crest from the nape to the withers ; the under-fur found in the gorals being absent. The general colour of the upper parts is black or dark gray, with a grizzled appear-



ance, owing to the whitish bases of the hairs; the under parts, shoulders, and thighs being rusty red. Although by no means large, the shining black, somewhat rugose horns form decidedly handsome trophies. Height at shoulder from 33 to 37 or 38 inches; weight from 120 to 190 lbs.

*Distribution.*—Throughout the Himalaya from Kashmir to the Mishmi Hills, at elevations of from 6000 to 12,000 feet; also recorded from Yunnan.



Head of Male Himalayan Serow.

From a specimen shot by W. T. Blanford in Sikim, now in the British Museum.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-12.25	6.5	2.75	Gurhwal . . .	A. O. Hume, C.B. (See Illustration on page 320.)
-12	...	...	Himalaya . . .	Major A. E. Ward.
-11	...	...	?	Major R. H. Ratray.
10½	5¾	3½	?	Hon. Charles Ellis.
-10½	5½	3½	Gurhwal . . .	A. P. Davis.
-10½	...	...	North of Musuri . .	Capt. Harry V. Brooke.
-10	5¾	5½	Mishmi Hills . . .	A. O. Hume, C.B.
10	...	...	Kumaon . . .	Major A. E. Ward.

HIMALAYAN SEROW (*Nemorhædus bubalinus*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
9 $\frac{7}{8}$	5 $\frac{5}{8}$	4 $\frac{1}{2}$	?	Sir Victor Brooke's Collection.
9 $\frac{3}{4}$	5 $\frac{1}{8}$	6	Pir Panjal . . .	R. Lydekker, British Museum.
9 $\frac{1}{2}$	5 $\frac{5}{8}$	4 $\frac{3}{4}$	Kashmir . . .	St. George Littledale.
9 $\frac{1}{2}$	4 $\frac{7}{8}$	3 $\frac{1}{4}$	Nepal . . .	The late B. H. Hodgson, British Museum.
9 $\frac{1}{2}$	5 $\frac{5}{8}$	3 $\frac{3}{4}$	?	Sir Edmund G. Loder, Bart.
—♀ 9 $\frac{3}{8}$	5 $\frac{1}{8}$	4	Sind Valley . . .	P. H. G. Powell-Cotton.
9	4 $\frac{1}{2}$	2 $\frac{1}{2}$	North of Musuri .	B. R. M. Glossop.
—8 $\frac{3}{10}$	5 $\frac{3}{10}$	3	Gurhwal . . .	Lieut.-Col. L. L. Fenton.
8 $\frac{1}{2}$	4 $\frac{3}{4}$	4	Pir Panjal . . .	Capt. N. C. Taylor.
8 $\frac{1}{2}$	5 $\frac{1}{4}$	4 $\frac{1}{2}$	Kashmir . . .	Col. R. Pole Carew, C.B.
8 $\frac{1}{2}$	4 $\frac{1}{2}$	5 $\frac{1}{4}$	Ranikhet . . .	D. R. Napier.
8	4 $\frac{3}{4}$	4 $\frac{3}{4}$	Near Darjiling . .	R. Lydekker, British Museum.
♀ 7 $\frac{1}{2}$	5	2 $\frac{1}{2}$	Gangutri . . .	Col. R. J. Heber-Percy.
7 $\frac{1}{2}$	4 $\frac{5}{8}$	3	?	Dr. W. P. Y. Bainbrigge.

**BURMESE SEROW** (*Nemorhædus bubalinus sumatrensis*).

Although commonly regarded as a distinct species, there can be little hesitation in classing this animal as a local race of the last, more especially as intermediate forms appear to occur in the neighbourhood of Darjiling. The chief distinction is the more decidedly rufous tint of the hair of the eastern race. Height at shoulder about  $34\frac{1}{2}$  inches.

*Distribution*.—From the Eastern Himalaya, Moupin in Tibet, and Yunnan, to Sumatra, occurring throughout the Assam Hills, Burma, Siam, and the elevated tracts of the Malay Peninsula.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
9.25	5	2.75	Garro Hills . .	A. O. Hume, C.B.
-9.5	5	5.5	Arakan Hills . .	Do.
9	$5\frac{1}{2}$	5	Burma . .	The late A. G. Trapmann.
9	5	2	Sumatra . .	Hume Collection, British Museum.
-9	5	5	Burma . .	Vet.-Capt. G. H. Evans.
-9	...	...	Arakan Hills	Indian Museum.
$8\frac{3}{4}$	$5\frac{1}{4}$	$4\frac{1}{2}$	? . .	Hume Collection, British Museum.
$8\frac{3}{4}$	5.5	$4\frac{3}{4}$	Muleyit . .	A. O. Hume, C.B.
$-8\frac{3}{4}$	$4\frac{7}{8}$	$2\frac{1}{8}$	Perak . .	Perak Museum.
$-8\frac{1}{2}$	$5\frac{7}{8}$	6	Burma . .	Vet.-Capt. G. H. Evans.
$8\frac{1}{2}$	5	$3\frac{1}{2}$	Upper Burma . .	Hon. Walter Rothschild.
$-8\frac{1}{8}$	$5\frac{1}{8}$	$5\frac{1}{4}$	Perak . .	Perak Museum.
$7\frac{3}{4}$	$4\frac{7}{8}$	$4\frac{1}{2}$	Assam . .	A. M. Long.
$7\frac{1}{2}$	$4\frac{3}{4}$	5	? . .	Duke of Bedford.
$-7\frac{1}{8}$	$4\frac{7}{8}$	$3\frac{3}{8}$	Garro Hills . .	Dr. Percy Rendall.
$5\frac{7}{8}$	$3\frac{3}{4}$	$3\frac{5}{8}$	Moulmein, Tenasserim	The late Capt. R. C. Beavan, British Museum.



Skull and Horns of Male Takin. From Col. J. Biddulph's record specimen.

**TAKIN** (*Budorcas taxicolor*).

Although recently suggested to be related to the musk-ox, this strange ruminant is more generally regarded as an aberrant relative of the serows. It is heavily built, with stout limbs, large lateral hoofs, a short tail, a convex profile, and an almost completely hairy muzzle. But its most remarkable feature is to be found in the horns, which are large, massive, and bent somewhat after the fashion of those of a gnu, curving at first outwards and somewhat downwards, and then bending abruptly upwards about the middle of their length. Height at shoulder about  $3\frac{1}{2}$  feet. Horns are present in both sexes, as in the serows and gorals, those of the female measuring about a foot in length, and lacking the curvature of those of the males.

*Distribution*.—Typically the Mishmi Hills on the northern frontier of Assam, but represented by a variety or allied species in Tibet, and perhaps a third in China. Although living within sight of Indian territory, it does not appear that takin have ever been killed by English sportsmen; and specimens are very rare in collections.

TAKIN (*Budorcas taxicolor*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-24 $\frac{1}{4}$	...	...	Mishmi Hills	Col. J. Biddulph. (See illustration.)
-24.25	12.75	12.75	Do.	Indian Museum.
22 $\frac{3}{8}$	10 $\frac{5}{8}$	14 $\frac{3}{4}$	Assam	British Museum.
-22.5	13.5	10.75	Mishmi Hills	Indian Museum.
-22	12 $\frac{3}{4}$	12 $\frac{1}{2}$	Do.	Bombay Natural History Society's Museum.
21 $1\frac{1}{10}$	11 $1\frac{5}{10}$	11 $\frac{3}{4}$	Do.	Dr. Percy Rendall.
21	12	13 $\frac{1}{2}$	Do.	A. J. Walter.
20 $\frac{7}{8}$	11 $\frac{3}{8}$	11 $\frac{7}{8}$	Assam	Hume Collection, British Museum.
20 $\frac{3}{4}$	11 $\frac{7}{8}$	12 $\frac{1}{2}$	Mishmi Hills	A. O. Hume, C.B.
20 $\frac{3}{4}$	10	12 $\frac{1}{8}$	Do.	Hon. Walter Rothschild.
20 $\frac{1}{2}$	10 $\frac{7}{8}$	12 $\frac{3}{8}$	?	The late B. H. Hodgson, British Museum.
19 $\frac{3}{4}$	11	11 $\frac{1}{2}$	Mishmi Hills	Col. J. Biddulph.
19 $\frac{3}{8}$	11	15	?	Sir Edmund G. Loder, Bart.
-19	...	...	?	Capt. E. T. Dalton, Indian Museum.
18	10 $\frac{1}{4}$	8	?	British Museum.
15 $\frac{1}{4}$	9 $\frac{3}{8}$	5 $\frac{3}{4}$	Mishmi Hills	The late B. H. Hodgson, British Museum.
14 $\frac{3}{8}$	8 $\frac{3}{4}$	8 $\frac{7}{8}$	Upper Assam	Lieut.-Col. Graham.
♀ 10 $\frac{1}{2}$	8	13	Mishmi Hills	A. O. Hume, C.B. (See illustration.)



Frontlet and Horns of Female Takin. From A. O. Hume's specimen.

**TIBETAN TAKIN** (*Budorcas taxicolor tibetanus*).

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-19 $\frac{3}{8}$	11 $\frac{1}{2}$	13 $\frac{3}{8}$	Tibet . . .	Père A. David, Paris Museum.

**KANSU TAKIN** (*Budorcas taxicolor sinensis*).

20 $\frac{1}{2}$	11 $\frac{1}{2}$	11 $\frac{3}{4}$	Kansu, China . . .	Hon. Walter Rothschild.
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**ROCKY MOUNTAIN GOAT** (*Haploceros montanus*).

This is one of the very few mammals that are permanently white or whitish at all seasons; and although commonly termed a goat, it really belongs to the same group as the serows, which it closely resembles in the form and colour of the horns. In winter the hair is very long and pure white in colour; along the back it is erect, and much elongated on the withers and haunches, so as to give to the animal the appearance of possessing a pair of humps. The summer coat is comparatively short, and has a yellowish tinge. Height at shoulder just short of 3 feet; weight from 180 to 300 lbs.

*Distribution*.—North America; throughout the Rocky Mountains, from about lat. 36° in California at least as far north as lat. 60°. By American naturalists the proper generic name of the animal is considered to be *Oreamnos* instead of *Haploceros*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-11 $\frac{1}{2}$	...	...	British Columbia . . .	Clive Philipps-Wolley.
-11	...	...	Kutenay, B.C. . . .	John T. Fannin (measured by).
-10 $\frac{1}{2}$	5 $\frac{3}{4}$	...	Montana . . . .	Walter James.
10 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{2}$	British Columbia . . .	R. Rankin.
-10 $\frac{1}{8}$	6 $\frac{1}{2}$	...	Similkameen River, British Columbia	Arthur Pearse.
10 $\frac{1}{8}$	5	6 $\frac{1}{8}$	?	E. N. Buxton.
-♀ 10 $\frac{1}{8}$	4 $\frac{3}{4}$	...	British Columbia . . .	Capt. A. Egerton.
10	5 $\frac{3}{8}$	6 $\frac{3}{8}$	Do. . . .	J. V. Colby.
-9 $\frac{3}{4}$	5	...	Montana . . . .	Theodore Roosevelt.
9 $\frac{3}{4}$	5 $\frac{1}{2}$	6 $\frac{1}{4}$	N.W. Territories . . .	S. Ratcliff.
9 $\frac{3}{4}$	5 $\frac{1}{4}$	6	Do. . . .	H.R.H. le Duc d'Orleans.
9 $\frac{5}{8}$	5 $\frac{1}{4}$	6 $\frac{1}{8}$	Do. . . .	Sir Edmund G. Loder, Bart.

ROCKY MOUNTAIN GOAT (*Haploceros montanus*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
9 $\frac{1}{2}$	5 $\frac{1}{2}$	6 $\frac{1}{4}$	Alaska . . .	St. George Littledale.
9 $\frac{1}{2}$	4 $\frac{1}{2}$	...	North America . . .	J. D. Cobbold.
♀ 9 $\frac{1}{2}$	4 $\frac{1}{4}$	5 $\frac{1}{2}$	British Columbia .	P. B. Vander-Byl.
9 $\frac{1}{2}$	5 $\frac{1}{4}$	6 $\frac{3}{8}$	East Kutenay, British Columbia	A. E. Butter.
-9 $\frac{1}{2}$	5 $\frac{1}{4}$	6 $\frac{1}{2}$	Bitter Root Mts., U.S.A.	James J. Harrison.
-♀ 9 $\frac{3}{8}$	4 $\frac{1}{2}$	5 $\frac{3}{8}$	British Columbia .	A. E. Leatham.
-9 $\frac{3}{8}$	5 $\frac{3}{8}$	6 $\frac{3}{4}$	Do. . . .	T. W. H. Clarke.
9 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	Do. . . .	J. Turner-Turner.
9 $\frac{1}{4}$	5 $\frac{1}{2}$	...	North America . . .	Earl of Lonsdale.
9 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	British Columbia .	G. Lloyd Gracme.
9 $\frac{1}{8}$	...	6	Montana . . .	Thomas Bate, British Museum.
9 $\frac{1}{8}$	5 $\frac{1}{4}$	5	British Columbia .	Sir Peter Walker, Bart.
9	4 $\frac{3}{4}$	6	Do. . . .	T. P. Kempson.
-8 $\frac{7}{8}$	5 $\frac{1}{2}$	4 $\frac{1}{8}$	Do. . . .	Count E. Hoyos.
8 $\frac{1}{2}$	4 $\frac{3}{8}$	5 $\frac{1}{4}$	Do. . . .	Count Scheibler.



Head of Rocky Mountain Goat.  
From a specimen shot by Sir Edmund G. Loder, Bart.



Head of Male Himalayan Tahr.

### **HIMALAYAN TAHR (*Hemitragus jemlaicus*).**

The three species of tahr are the first representatives of that great group of ruminants which also includes the true goats and sheep. In all these animals horns are, as a rule, present in both sexes, and are generally more or less distinctly angulated; while the cheek-teeth have tall and narrow crowns like those of the serows, which the tahr serve to connect with the true goats. From the latter tahr are readily distinguished by the small size of their horns, which exceed but little in length the head, as well as by the absence of a beard on the chin of the males. The Himalayan tahr is easily recognised by the great length of the hair of the body, which, although in museum specimens generally combed straight, is very shaggy in nature; and likewise by the form of the horns, which have a knotted sharp keel in front. Height at shoulder from 36 to 40 inches; weight about 200 lbs. Mr. Wilson, "Mountaineer," had a pair of horns, length 16.5 and girth 10.5, which Mr. A. O. Hume measured.

*Distribution.*—The Himalaya, from Bhutan to Kashmir.



HIMALAYAN TAHR (*Hemitragus jemlaicus*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-14 $\frac{3}{4}$	...	...	Chamba . . . .	A. H. Ogilvy Spence.
-14 $\frac{5}{8}$	...	...	?	H. Vansittart.
14 $\frac{9}{10}$	8 $\frac{3}{4}$	...	Chamba . . . .	J. S. Rivett-Carnac.
-14 $\frac{1}{2}$	9 $\frac{3}{4}$	6 $\frac{3}{4}$	Do. . . .	A. H. Ogilvy Spence.
14 $\frac{1}{4}$	8 $\frac{7}{8}$	4 $\frac{3}{8}$	?	A. Cadell.
14 $\frac{1}{8}$	8 $\frac{7}{8}$	6 $\frac{3}{8}$	Kumaon . . . .	A. O. Hume, C.B.
-14 $\frac{1}{8}$	...	...	?	A. B. Lindsay.
14	...	...	?	Capt. R. L. Tottenham.
-14	...	...	?	Major A. E. Ward.
13 $\frac{7}{8}$	9	8 $\frac{3}{8}$	Chamba . . . .	Hugo de Burgh.
13 $\frac{7}{8}$	...	...	Do. . . .	Col. R. J. Heber-Percy.
13 $\frac{3}{4}$	9	11 $\frac{1}{4}$	?	Hume Collection, British Museum.
13 $\frac{3}{4}$	8 $\frac{3}{8}$	6 $\frac{7}{8}$	Danpur, Kumaon . .	A. O. Hume, C.B.
13 $\frac{3}{4}$	8 $\frac{1}{2}$	7 $\frac{3}{4}$	?	I. Morse.
13 $\frac{5}{8}$	8	6 $\frac{1}{4}$	?	Hume Collection, British Museum.
-13 $\frac{1}{2}$	10	...	?	Major C. F. Blane.
13 $\frac{3}{8}$	9 $\frac{1}{8}$	5 $\frac{3}{4}$	?	Hon. Walter Rothschild.
13 $\frac{1}{4}$	8 $\frac{7}{8}$	5 $\frac{3}{4}$	?	Sir Victor Brooke's Collection.
13 $\frac{1}{4}$	8 $\frac{1}{2}$	6 $\frac{7}{8}$	Nepal (?) . . .	Sir Edmund G. Loder, Bart.
13 $\frac{1}{4}$	8 $\frac{1}{2}$	...	?	E. L. Phelps.
-13 $\frac{1}{4}$	9	5	?	P. H. G. Powell-Cotton.
-13	9	...	?	Indian Museum.
-13	9 $\frac{3}{4}$	...	Chamba . . . .	Capt. A. Hicks-Beach.
-13	9 $\frac{1}{4}$	...	Himalaya . . . .	Major-General Alexander A. A. Kinloch.
-12 $\frac{3}{4}$	...	...	Chamba . . . .	Col. R. J. Heber-Percy.
-12 $\frac{3}{4}$	9	7 $\frac{3}{4}$	Do. . . .	H. L. S. MacLean, Officers' Mess, Queen's Own Corps of Guides.
12 $\frac{1}{2}$	8 $\frac{1}{2}$	10	?	The late J. E. Ubsdell.
12 $\frac{1}{4}$	8 $\frac{7}{8}$	4 $\frac{3}{4}$	?	Sir Robert Harvey, Bart.
12 $\frac{1}{2}$	8 $\frac{1}{4}$	6 $\frac{1}{2}$	?	H.R.H. the Duke of Saxe-Coburg and Gotha.



Skull and Horns of Male Arabian Tahr. (From Thomas, *P.Z.S.* 1894.)

#### ARABIAN TAHR (*Hemitragus jayakeri*).

A much smaller and rather shorter-haired species than the last, of a generally tawny brown colour, with relatively longer and more slender horns, which are less boldly knotted on the front edge. Height at shoulder about  $24\frac{1}{2}$  inches.

This species, of which the type specimen is in the British Museum, was first obtained by Dr. A. S. G. Jayakar, in honour of whom it was named by Mr. O. Thomas in 1894.

*Distribution*.—Jebel Taw, and probably some of the other ranges of Oman, in South-East Arabia.

Length on front curve.	Locality.	Owner.
—11 $\frac{5}{8}$	Oman Mountains . . .	Surgeon Lieut.-Col. A. S. G. Jayakar.



Head of Male Nilgiri Tahr.

**NILGIRI TAHR** (*Hemitragus hylocrius*).

Although commonly designated by British sportsmen the "Nilgiri ibex," this species (the warriattu of the native shikaris) is really a member of the same genus as the Himalayan tahr. From that species it is at once distinguished by its short hair and the form of the horns; the latter having the outer surface convex instead of flat, and lacking the knotted front keel. The general colour is dark blackish-brown, old males developing a light saddle-like patch on the back. Height at shoulder from 39 to 42 inches in the males, and up to 35 inches in the females.

*Distribution.*—The hill-ranges of Southern India, including the Nilgiris, Anamalais, and the Western Ghats nearly to Cape Comorin; usually at elevations of from 4000 to 6000 feet, but occasionally descending to lower levels. This interesting species has been greatly reduced in numbers by constant persecution, but as the herds have now been placed under Government protection, and a special permit is necessary for shooting, there is hope that it may shortly increase.

NILGIRI TAHR (*Hemitragus hylocrius*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-17.5	9.9	6	Nilgiris . . .	Rhodes Morgan.
-17	9 $\frac{3}{4}$	...	Do. .	Measured by General MacMaster, 1869.
16 $\frac{3}{4}$	8 $\frac{7}{8}$	5 $\frac{5}{8}$	? .	A. O. Hume, C.B.
-16 $\frac{1}{2}$	...	...	Nilgiris . .	St. George Littledale.
16 $\frac{1}{2}$	8 $\frac{1}{4}$	6	Do. .	S. G. Bird.
-16	9.5	5	Do. . .	Rhodes Morgan.
15 $\frac{1}{2}$	8 $\frac{3}{8}$	7 $\frac{7}{8}$	Do. .	Sir Edmund G. Loder, Bart.
15 $\frac{3}{8}$	8 $\frac{3}{4}$	6 $\frac{3}{4}$	Do. . .	Martyn Kennard.
15 $\frac{3}{8}$	8 $\frac{1}{4}$	6	Do. . .	St. George Littledale.
15 $\frac{1}{8}$	8 $\frac{5}{8}$	4 $\frac{3}{4}$	Do. . .	Martyn Kennard.
15 $\frac{1}{8}$	8 $\frac{5}{8}$	4 $\frac{3}{8}$	Do. .	St. George Littledale.
-15	8 $\frac{1}{4}$	5 $\frac{1}{8}$	Do. .	Sir H. D. Tichborne, Bart.
14 $\frac{3}{4}$	8 $\frac{1}{2}$	5 $\frac{5}{8}$	Do. .	Capt. C. S. Timins.
14 $\frac{3}{4}$	8 $\frac{7}{8}$	5 $\frac{1}{2}$	Do. . .	R. A. Sterndale.
14 $\frac{3}{4}$	8 $\frac{1}{4}$	7 $\frac{1}{4}$	Do. .	M. Loam.
14 $\frac{1}{2}$	8 $\frac{3}{4}$	6 $\frac{1}{4}$	Do.	British Museum.
14 $\frac{1}{2}$	8 $\frac{5}{8}$	5 $\frac{1}{8}$	Do. .	Sir Victor Brooke's Collection.
14 $\frac{3}{8}$	8	4 $\frac{5}{8}$	Anamalai Hills . .	T. W. Greenfield.
-14 $\frac{1}{4}$	8 $\frac{1}{4}$	4	Travancore . .	J. D. Inverarity.
-14 $\frac{1}{4}$	8	4 $\frac{1}{2}$	Do. .	A. E. Leatham.
14	7 $\frac{3}{4}$	5	Do. .	Capt. Hon. E. Baring.
14	7 $\frac{3}{4}$	6 $\frac{1}{2}$	Do. .	Major G. S. Rodon.
14	7 $\frac{5}{8}$	6 $\frac{3}{8}$	Do. . .	Col. J. Biddulph.
♀ 12 $\frac{3}{8}$	5 $\frac{1}{2}$	2 $\frac{3}{8}$	Anamalai Hills . .	M. Loam.
♀ 11 $\frac{3}{4}$	5 $\frac{3}{4}$	4 $\frac{1}{8}$	Do. . .	Hon. Walter Rothschild.
♀ 11.25	5.25	4	Do. .	A. O. Hume, C.B.
♀ 11 $\frac{1}{8}$	5 $\frac{3}{4}$	...	Travancore . .	Col. Hon. Francis C. Bridgeman.
♀ 10	5 $\frac{3}{4}$	4	Nilgiris . .	St. George Littledale.
♀ 9 $\frac{3}{4}$	...	...	Do. .	Indian Museum.
♀ 9 $\frac{3}{4}$	5 $\frac{1}{2}$	3 $\frac{1}{2}$	Do. .	Lieut.-Col. Hon. W. Coke.



Horns of Pir Panjal Markhor.  
Shot by Major J. C. Shirres, in the Kajnag, April 22, 1884.

### ASTOR and the PIR PANJAL MARKHOR

(*Capra falconeri typica*, and *C. falconeri cashmiriensis*).

The markhor, of which there are four local races, probably passing more or less completely into one another, introduces us to the true goats (*Capra*). The males differ from the tahr by their much larger horns, whose length greatly exceeds that of the head, and likewise by the presence of a more or less distinct beard on the chin. In all the varieties of the markhor the beard is extended so as to form a fringe on the throat and chest; the hair on the body being also elongated. Moreover, the horns form a spiral, quite unlike the scimitar-shape characteristic of the ibex and common goat. In the Astor (*C. falconeri typica*) and Pir Panjal (*C. falconeri cashmiriensis*) races of the markhor the horns take the form of an open corkscrew-like spiral, with comparatively few turns, recalling those of the kudu; the spiral being most open, the spread widest, and the turns fewest in the Astor variety. Height at shoulder of a Gilgit specimen,  $38\frac{1}{2}$  inches; of Kashmir specimens, from 38 to 41 inches; weight from

about 200 to 240 lbs. The Astor race is found in Astor and Baltistan, while the Pir Panjal variety inhabits the Pir Panjal and Kajnag ranges of Kashmir, and extends to the north-west into Hazara and Gilgit, where it probably intergrades with the former.



Horns of Astor Markhor. From A. O. Hume's specimen.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
-63	...	...	...	?	Major-General Alexander A. A. Kinloch. <sup>1</sup>
-60	...	...	...	Astor . . .	Lucknow Museum.
-59	...	12	36	Kajnag . . .	Major J. C. Shirres, D.S.O.
-59	...	...	...	Pir Panjal . . .	(See illustration on p. 333.) Lucknow Museum.
-58½	40½	10	38½	Gilgit . . .	Marquis of Lansdowne, K.G., K.C.M.G.
-56½	38	11	38	Kashmir . . .	J. Benett-Stanford.
-56	...	...	...	Astor . . .	Capt. H. Trevor.
-56	36½	13½	34½	Do. . . .	Viscount Edmond de Poncins.
55	44½	11	47	?	East India Club.

<sup>1</sup> Picked up either on the Pir Panjal or Kajnag Ranges by the late Col. Cuppage, and measured by Major-General Alexander A. A. Kinloch.

**ASTOR and the PIR PANJAL MARKHOR**  
(*Capra falconeri typica* and *C. falconeri cashmiriensis*)—*continued.*

Length. On outside curve.	Straight line.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-55	...	...	...	Astor . . .	Otho Shaw.
54½	...	10½	26½	?	A. O. Hume, C.B.
54	...	10½	33½	Astor . . .	Martyn Kennard.
53½	42½	11½	52 about	Do. . . .	Sir Victor Brooke's Collec- tion. <sup>1</sup>
53	36½	10½	30½	?	A. O. Hume, C.B. (See illustration on page 337.)
-53	...	9½	26	?	Major A. E. Ward.
53	38½	9½	35½	Gilgit . . .	Hon. Walter Rothschild.
52½	39½	12½	33½	Astor . . .	Martyn Kennard.
52	35	9½	42½	Gilgit . . .	Major F. H. Taylor.
51½	37½	10	33	Pir Panjal . . .	Sir Edmund G. Loder, Bart.
51½	...	11½	49½	Astor . . .	Martyn Kennard.
-51½	...	12	44½	Haramosh . . .	P. H. G. Powell-Cotton.
50	38	11½	36	Astor . . .	Sir Edmund G. Loder, Bart.
50	36	10	33	Chitral . . .	R. H. Macdonald.
50	36½	12	36	Chilas . . .	Capt. W. Hayes-Sadler.
50	...	11½	35½	Astor . . .	Martyn Kennard.
-50	...	...	...	Do. . . .	Capt. H. V. Oliver.
-50	29	11½	31	Haramosh . . .	E. L. Phelps.
-49½	...	11½	40	Astor . . .	H. Lennard.
-49½	32½	10½	43	Gilgit . . .	Col. J. Biddulph.
-49½	35	10	37½	Kajnag . . .	P. H. G. Powell-Cotton.
49½	36	11½	32	Chilas . . .	L. W. S. Oldham.
-49	39½	11½	...	Chitral . . .	C. R. Johnson.
-49	...	11	35	Haramosh . . .	Capt. H. W. Codrington, Officers' Mess, Q.O. Corps of Guides.
49	35	14	44	?	A. O. Hume, C.B. (See illustration on page 334.)
-49	...	...	42	Astor . . .	Otho Shaw.
48½	...	11½	45	Do. . . .	Capt. M. Murphy.

<sup>1</sup> Shot by Capt. Harry V. Brooke.

ASTOR and the PIR PANJAL MARKHOR  
 (*Capra falconeri typica* and *C. falconeri cashmiriensis*)—*continued*.



Skull and Horns of Pir Panjal Markhor. From A. O. Hume's specimen.

Length.		Circum- ference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
48½	31½	11¾	26½	Baltistan . .	H. Z. Darrah.
48	37¾	12¾	29	Pir Panjal . .	A. O. Hume, C.B. (See above illustration.)
48	31½	12	38	Haramosh . .	J. V. Phelps.



## ASTOR and the PIR PANJAL MARKHOR

(Capra falconeri typica and C. falconeri cashmiriensis)—continued.

Length.		Circumference.	Tip to Tip.	Locality.	Owner.
On outside curve.	Straight line.				
47½	..	11	...	Kashmir . . .	Major-Gen. Alexander A. A. Kinloch.
47¼	37	12½	38	Chilas . . .	L. W. S. Oldham.
47	36	11½	39	Do. . . .	Sir Victor Brooke's Collection.



Horns of Variety of Pir Panjal Markhor. From A. O. Hume's specimen.

47	34½	12	40	Pir Panjal . . .	Dr. W. P. Y. Bainbrigge.
47	.	11	32	Rondu, Baltistan . .	F. W. H. Walshe.
47		11½	...	Indus Valley . . .	Captain H. M. Biddulph.
46½	...	11½	Odd horn	Astor Valley . . .	British Museum.



Skull and Horns of (1) Cabul, and (2) Suleman Markhor. From A. O. Hume's specimens.

**ASTOR and the PIR PANJAL MARKHOR**  
**(*Capra falconeri typica* and *C. falconeri cashmiriensis*)—continued.**

On outside curve.	Length.		Circumference.	Tip to Tip.	Locality.	Owner.
	Straight line.					
—...	34	...	...	?		Maharaja of Travancore, G.C.S.I.
46	31½	10	35	Bunji . . .		Col. F. C. Lister-Kay.
46	33½	10	34½	Kajmag . . .		Sir Edward Ion Grogan, Bart.
45½	...	11⅜	37½	Chilas . . .		Major C. S. Cumberland.
—45		...	...	Kajmag . . .		Otho Shaw.
45	35¾	11	36	Haramosh . . .		P. Church.
43¾	...	10½	32¾	Kashmir . . .		Hon. Charles Ellis.
43½	32½	12	38½	Do. . . . .		I. Morse.
43	31	9½	28	Baltistan . . .		Major C. H. Hayes.
—43	...	9⅝	30	Do. . . . .		Capt. T. A. Salt.
—43	20½	13	35	Astor . . . . .		E. L. Phelps.
42¾	...	12	32½	Kashmir . . .		Sir Robert Harvey, Bart.
42½	32½	11½	32⅝	Astor . . . . .		Hon. Walter Rothschild.
42	31	11½	32	Pir Panjal . . .		W. R. Lawrence.
—42	36	11¾	...	Chitral . . . . .		C. R. Johnson.
41½	...	10	30⅞	Gilgit . . . . .		St. George Littledale.
41	...	12¼	42⅝	Indus Valley . . .		Capt. M. Murphy, British Museum.
41	...	10	27⅝	Pir Panjal . . .		R. Lydekker, British Museum.
39¾	31¾	11	37	?		P. W. Cobbold.
39½	29	11	27½	Baltistan . . .		Major H. C. Morland.
—37½	...	12	33	Kashmir . . . . .		Dublin Museum.
37½	27½	11	35½	Do. . . . .		Major A. Nugent.
♀ 16¼	13⅝	5⅝	13	Astor . . . . .		Martyn Kennard.



Head of Suleman Markhor. From A. J. Grant's Waziristan specimen.

### CABUL and SULEMAN MARKHOR

(*Capra falconeri megaceros* and *C. falconeri jerdoni*).

In the Cabul race of the markhor (*C. falconeri megaceros*), from the trans-Indus districts near Cabul, the horns are nearly straight, but show a slightly open spiral, being intermediate between those of the Pir Panjal and Suleman races. On the other hand, in the latter (*C. falconeri jerdoni*) the relatively small horns form a perfectly straight cone, upon which the spiral ridges run like the "worm" of a screw. The distributional area of the latter race includes the trans-Indus hill-ranges on the frontier of the Punjab, Afghanistan, and Baluchistan,

extending in the Suleman range as far as Mithankot, and also to the Quetta district.

Length in straight line.	Circumference.	Tip to Tip.	Locality.	Owner.
48½	7¾	Odd horn Suleman race	?	British Museum.
39¾	10¼	24¼	Afghanistan	The late Col. Grant, British Museum.
39½	12¼	38	Mountain range 25 miles N.W. of Wana	A. J. Grant. (See illustration, page 340.)
38½	10½	27¾	Afghanistan	H.R.H. the Duke of Saxe-Coburg and Gotha.
37	10	32	?	Capt. G. Roos Keppel.
1 35½	10	25	Baluchistan	Col. J. Biddulph.
-35	...	...	Afghanistan	Major A. E. Ward.
34¾	10¾	28	Baluchistan	The late Capt. E. W. Codrington.
33	9½	19¾	Afghanistan	Sir Edmund G. Loder, Bart.
32½	10	22½	Bunu	Officers' Mess, Queen's Own Corps of Guides.
32¼	9¾	28	?	A. O. Hume, C.B.
32	10	27½	Cabul	A. O. Hume, C.B. (See illustration on page 338.)
31½	9½	27	Suleman Range	Hon. Walter Rothschild.
30¾	8¾	21½	?	Sir Victor Brooke's Collection.
29¾	8½	23¾	Baluchistan	Major R. H. Rattray.
29	9	21	Do.	The late Capt. E. W. Codrington.
-28	..	...	?	Otho Shaw.
27¾	8¾	21	Sheik Budin	Sir Edmund G. Loder, Bart.
27	9	18	Do.	Col. J. Biddulph.
26.75	11.25	22.5	Suleman Range	A. O. Hume, C.B. (See illustration on page 338.)
26¼	...	18	Bunu	Capt. H. W. Codrington.
26	8¾	18½	Sheikh Budin	Gen. Sir H. Collett, K.C.B.
26	9	16½	Bunu	Capt. H. W. Codrington.
24	9¾	20	?	G. Blois Johnson.
-24	...	...	Sheikh Budin	Major-General Alexander A. A. Kinloch.
22½	10¼	15¾	East Afghanistan	J. E. Penton.

1 Straight line 30¾.



Head of Himalayan Ibex. From H. Z. Darrah's specimen.

### ASIATIC IBEX (*Capra sibirica*).

The first of the true ibexes, in all of which the long scimitar-shaped horns carry bold transverse knots on the front surface. In the present species the horns are characterised by their large size and well-developed front surface; the second distinctive feature being the long beard of the males. Height at shoulder from 40 to 42 inches; weight about 206 lbs., when cleaned from 128 to 153 lbs.

*Distribution.*—The mountains of Central Asia, from the Altai to the Himalaya (exclusive of the Pir Panjal), and from the neighbourhood of Herat to Kumaon. Apparently two races of this species, distinguished by the coloration of the lower part of the legs, may be recognised; namely, the Thian Shan ibex (*C. sibirica typica*), from the Thian Shan, Altai, Baltistan, etc.; and the Himalayan ibex (*C. sibirica sacin*), from the mountains to the northward of Kashmir and adjacent districts as far east as the source of the Ganges.

ASIATIC IBEX (*Capra sibirica*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-56	...	...	Tagdumbash . .	Major A. E. Ward.
-54 $\frac{3}{4}$	10 $\frac{1}{4}$	25	Gilgit . .	Officers' Mess, Queen's Own Corps of Guides. <sup>1</sup>
53 $\frac{1}{2}$	10 $\frac{1}{2}$	20 $\frac{1}{4}$	Do. . .	Col. J. Biddulph.
-52	11 $\frac{1}{2}$	...	Do. . .	Major A. E. Ward.
-52	10	...	Baltistan	Maharaja of Travancore, G.C.S.I.
-52	...	...	?	The late E. Blyth, <i>P.Z.S.</i> 1840, p. 80.
-51 $\frac{1}{2}$	...	...	Kashmir . .	Martyn Kennard.
-51 $\frac{1}{4}$	10 $\frac{1}{2}$	16	?	The late E. Blyth, <i>P.Z.S.</i> 1840, p. 80.
51	9 $\frac{3}{8}$	28 $\frac{1}{2}$	?	Sir Victor Brooke's Collection.
-50	11	30 $\frac{1}{2}$	?	Marquis of Lansdowne, K.G., K.C.M.G.
-50	10 $\frac{1}{4}$	21	?	Capt. H. Newton.
-50	...	...	?	Capt. H. Trevor.
-50	...	...	?	Officers' Mess, 7th Hussars.
49 $\frac{3}{4}$	10 $\frac{3}{8}$	25 $\frac{1}{4}$	?	Sir Edmund G. Loder, Bart.
49 $\frac{1}{2}$	10 $\frac{7}{8}$	42	Kashmir . .	Martyn Kennard.
-49 $\frac{1}{2}$	11 $\frac{1}{4}$	27 $\frac{1}{2}$	Baltistan . .	Major James Grant.
49	10 $\frac{1}{4}$	9 $\frac{1}{2}$	Skardo . .	Major George Douglas.
-48 $\frac{1}{2}$	9 $\frac{3}{4}$	34 $\frac{1}{2}$	Gilgit. . .	Officers' Mess, Queen's Own Corps of Guides.
48 $\frac{1}{2}$	9 $\frac{5}{8}$	30 $\frac{1}{2}$	Nubra valley, north of Leh	A. O. Hume, C.B.
-48	...	...	Skardo . . .	J. L. Wood.
48	10 $\frac{1}{2}$	24 $\frac{1}{2}$	Tilel Valley, Kashmir	J. Campbell of Kilberry.
-47 $\frac{1}{4}$	...	...	Thian Shan . .	F. A. Labouchere.
-47.5	9.5	20.5	Mushral, Nr. Khoga .	A. O. Hume, C.B.
47	11 $\frac{1}{4}$	...	?	Carl Hagenbeck.
-47	...	...	Baltistan . .	Major E. Guinness.
47	10 $\frac{1}{2}$	29 $\frac{3}{4}$	Kashmir . . .	Martyn Kennard.
47	10	...	?	Capt. J. Manners Smith, V.C.
-47	...	...	Baltistan . .	A. R. Oldfield.
46 $\frac{1}{2}$	11	24 $\frac{3}{4}$	Kashmir . . .	Hon. Charles Ellis.

<sup>1</sup> Picked up by Lieut.-Col. R. E. Hutchinson.

ASIATIC IBEX (*Capra sibirica*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-46 $\frac{1}{2}$	...	...	?	Indian Museum.
46	9 $\frac{3}{4}$	25	?	Sir Victor Brooke's Collection.
-46	11 $\frac{1}{4}$	27	Sind Valley	A. O. Hume, C.B.
-46	...	...	Kashmir	Capt. Hon. J. G. Beresford.
-45 $\frac{1}{4}$	9 $\frac{5}{8}$	24 $\frac{3}{4}$	Baltistan	Capt. H. W. Codrington, Officers' Mess, Queen's Own Corps of Guides.
45	10 $\frac{1}{2}$	29	Ladak	P. H. G. Powell-Cotton.
45	10 $\frac{1}{2}$	26	Astor .	Capt. F. C. Quicke.
-45	10	20 $\frac{1}{4}$	Gilgit .	Col. J. Biddulph.
-45	...	...	Kashmir	Major R. L. Walter.
45	9	12 $\frac{1}{2}$	Baltistan	Capt. C. B. Vandeleur.
-44 $\frac{3}{4}$	...	...	Do.	Hon. C. B. Fulke-Greville.
44 $\frac{5}{8}$	10 $\frac{3}{4}$	30	Upper Shyok Valley	A. O. Hume, C.B.
44 $\frac{1}{2}$	11 $\frac{3}{4}$	26	?	Major J. A. Orr-Ewing.
44 $\frac{1}{2}$	11	19	?	J. Bennett-Stanford.
-44 $\frac{1}{2}$	...	...	Kashmir	Major G. A. L. Carew, D.S.O.
44 $\frac{1}{2}$	9 $\frac{1}{2}$	27 $\frac{1}{2}$	Astor .	The late Capt. E. W. Codrington.
44 $\frac{1}{4}$	10	34	Ladak	Lieut.-Col. H. Wade-Dalton.
-44	...	...	Baltistan	E. Ezra.
-44	...	..	Do.	C. H. Rankin.
43 $\frac{3}{4}$	9 $\frac{1}{2}$	16 $\frac{1}{2}$	Kashmir	S. V. Occleston.
43 $\frac{5}{8}$	10 $\frac{1}{4}$	24 $\frac{3}{4}$	?	Sir. Robert Harvey, Bart.
-43 $\frac{1}{2}$	9 $\frac{3}{4}$	19	?	Hume Collection, British Museum.
-43 $\frac{1}{2}$	...	...	Astor .	Otho Shaw.
-43 $\frac{1}{2}$	11 $\frac{1}{2}$	...	Himalaya	Major-General Alexander A. A. Kinloch.
-43 $\frac{1}{2}$	10	31 $\frac{1}{4}$	Altai .	H. J. Elwes.
43 $\frac{1}{2}$	9 $\frac{3}{4}$	18 $\frac{3}{4}$	Kashmir	Capt. M. S. Wellby.
43 $\frac{1}{2}$	9 $\frac{1}{2}$	23	Do.	Dr. W. P. Y. Bainbrigge.
43 $\frac{1}{2}$	...	...	Baltistan	J. Vaughan.
-43 $\frac{1}{2}$	11	...	?	Maharaja of Travancore, G.C.S.I.



ASIATIC IBEX (*Capra sibirica*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-43 $\frac{1}{2}$	...	...	Haramosh	A. R. Oldfield.
-43 $\frac{1}{2}$	10 $\frac{3}{4}$	22 $\frac{1}{2}$	Do.	J. V. Phelps.
43 $\frac{1}{8}$	9 $\frac{5}{8}$	...	Mustagh Range	Capt. F. E. S. Adair.
43	12 $\frac{1}{2}$	35 $\frac{1}{2}$	Basha Nalla, Baltistan	T. W. Greenfield.
43	11	10	?	Major J. Harden.
43	10	9	?	E. F. Holden.
43	9 $\frac{3}{4}$	28 $\frac{1}{2}$	?	R. Rankin.
-43	...	...	?	Lucknow Museum.
42 $\frac{3}{4}$	10	25 $\frac{1}{2}$	Baltistan	P. S. Allan.
-42 $\frac{3}{4}$	10 $\frac{3}{4}$	24	Haramosh	J. V. Phelps.
42 $\frac{5}{8}$	8 $\frac{3}{4}$	21	Baltistan	H. Z. Darrah.
42 $\frac{1}{2}$	10 $\frac{1}{2}$	22	Kashmir	Col. R. J. Heber-Percy.
42 $\frac{1}{2}$	9 $\frac{1}{2}$	21 $\frac{1}{2}$	?	Arnold Pike.
-42 $\frac{1}{2}$	10 $\frac{1}{2}$	27	Astor	E. L. Phelps.
-42 $\frac{1}{2}$	9 $\frac{1}{2}$	...	Mongolia	J. D. Cobbold.
42	9 $\frac{1}{4}$	26	Ladak	Lieut.-Col. H. Wade-Dalton.
-42	...	...	Kashmir	The late Major W. D. B. Fenton.
-42	...	...	Baltistan	F. W. Wormold.
-41 $\frac{3}{4}$	10	...	Do.	Capt. H. M. Biddulph.
-41 $\frac{3}{4}$	9 $\frac{3}{4}$	19 $\frac{1}{2}$	Haramosh	E. L. Phelps.
-41 $\frac{5}{8}$	10 $\frac{1}{8}$	20 $\frac{1}{2}$	Skardo	Major G. Douglas.
41 $\frac{1}{2}$	9	21	Chitral	Capt. R. L. Tottenham.
41	10 $\frac{1}{2}$	26 $\frac{3}{4}$	?	Capt. J. H. Purvis.
-41	10 $\frac{1}{4}$	14	Baltistan	Major H. R. Kelham.
41	9 $\frac{1}{4}$	26 $\frac{1}{2}$	Shyok Valley	Capt. F. E. S. Adair.
41	11 $\frac{1}{4}$	25 $\frac{1}{2}$	Baltistan	V. F. A. Keith-Falconer.
41	9 $\frac{3}{4}$	24	Do.	Major A. Nugent.
41	9 $\frac{1}{2}$	12	Do.	W. J. M'Lachlan.
40 $\frac{3}{4}$	10 $\frac{1}{2}$	22 $\frac{1}{2}$	Do.	Major C. H. Hayes.
40 $\frac{5}{8}$	10 $\frac{3}{4}$	33 $\frac{3}{4}$	?	Sir Edmund G. Loder, Bart.

ASIATIC IBEX (*Capra sibirica*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
40 $\frac{1}{2}$	10	20 $\frac{1}{2}$	?	A. C. Hall.
40 $\frac{1}{2}$	11 $\frac{1}{4}$	21 $\frac{1}{2}$	?	Hon. Charles Ellis.
40 $\frac{1}{2}$	10 $\frac{1}{2}$	19	Altai .	Prince Demidoff.
40	10 $\frac{1}{2}$	29 $\frac{1}{4}$	Baltistan	Major C. S. Cumberland.
40	10	30	Chilas . .	L. W. S. Oldham.
-40	9 $\frac{1}{2}$	20	?	Dublin Museum.
-40	9 $\frac{3}{4}$	20 $\frac{3}{4}$	Kandgut .	Viscount Edmond de Poncins.
40	9 $\frac{3}{4}$	22 $\frac{1}{4}$	?	Viscount Fincastle, V.C.
40	10	9 $\frac{3}{4}$	?	H. De Prée.
40	9 $\frac{3}{4}$	23	Kashgar . .	R. P. Cobbold.
40	9	29 $\frac{1}{2}$	Kashmir . .	B. Vincent.
39 $\frac{5}{8}$	9	21 $\frac{1}{8}$	Mongolia . .	St. George Littledale.
39 $\frac{1}{2}$	10 $\frac{1}{2}$	29 $\frac{3}{4}$	Kashmir . .	Capt. N. C. Taylor.
39 $\frac{1}{2}$	10	21 $\frac{3}{4}$	Ladak . . .	W. R. Codrington.
39 $\frac{1}{2}$	9 $\frac{1}{2}$	22 $\frac{1}{2}$	Do. . .	Col. Strachey, British Museum.
39 $\frac{1}{2}$	9 $\frac{1}{2}$	14 $\frac{3}{4}$	Thian Shan .	Col. J. Biddulph.
39 $\frac{1}{2}$	9 $\frac{3}{4}$	23	Baltistan . . .	Capt. W. E. Gordon.
39 $\frac{1}{2}$	9 $\frac{3}{4}$	13	?	J. R. Carden.
-39 $\frac{1}{2}$	12	28	Kashmir . . .	J. Benett-Stanford.
39	10 $\frac{1}{2}$	27 $\frac{1}{2}$	?	Capt. L. I. B. Hulke.
39	9 $\frac{3}{4}$	20	Kashmir .	Earl of Dunmore.
39	9 $\frac{1}{4}$	17	Do.	A. Leslie Renton.
38 $\frac{1}{2}$	10	21 $\frac{1}{2}$	Do. .	S. Melville.
38 $\frac{1}{4}$	10 $\frac{1}{2}$	19	Do. . .	E. Langworthy.
38 $\frac{1}{4}$	10 $\frac{3}{8}$	22 $\frac{1}{2}$	Do. . .	Hon. Walter Rothschild.
38	9 $\frac{1}{2}$	16	?	David T. Hanbury.
38	10	27	Altai . . . .	Prince Demidoff.
37 $\frac{1}{2}$	10 $\frac{1}{2}$	21	?	Duke of Portland.
35 $\frac{1}{8}$	9	11	Saiar Mountains, Altai	St. George Littledale, British Museum.
33 $\frac{1}{2}$	9	21	Altai . . . .	St. George Littledale.

ASIATIC IBEX (*Capra sibirica*)—*continued.*

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-27 $\frac{7}{8}$	8 $\frac{3}{4}$	9 $\frac{7}{8}$	Russian Turkestan	Viscount Edmond de Poncins.
-♀ 13 $\frac{1}{2}$	5	8	Tilel Valley	J. Campbell of Kilberry.
♀ 11 $\frac{5}{8}$	4	5	Kashmir	Sir Edmund G. Loder, Bart.
♀ 11 $\frac{1}{4}$	4	8 $\frac{1}{2}$	Do.	Capt. Cecil Levita.

ALPINE IBEX (*Capra ibex*).

This species, which only survives in a protected state, differs from the Asiatic ibex by the much smaller size of the beard of the male, as well as by a slight variation in the horns; the height at the shoulder reaching to about 40 inches. Weight from 85 to 106 lbs., clean. Formerly distributed throughout the higher Alps of Switzerland, Savoy, and the Tyrol, but now surviving only in a few valleys on the Italian side of Monte Rosa. Most of the few specimens now obtainable are comparatively small, and good horns are very scarce in English collections.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-44 $\frac{5}{8}$	10 $\frac{1}{2}$	1...	Valley of Aosta .	H.M. the King of Italy.
-38 $\frac{5}{8}$	...	...	Do.	Do.
-37 $\frac{3}{4}$	...	...	Do.	Do.
35 $\frac{3}{8}$	9	26 $\frac{3}{4}$	Do.	Do.
34 $\frac{1}{2}$	9 $\frac{3}{4}$	...	Styria .	Sir Edmund G. Loder, Bart.
-34 $\frac{1}{4}$	9	26	Valley of Aosta .	H.M. the King of Italy.
-33 $\frac{1}{2}$	9	39 $\frac{3}{8}$	Do.	Shot by H.M. the late Victor Emanuel, King of Italy.
-31 $\frac{3}{4}$	9 $\frac{1}{8}$	18 $\frac{3}{4}$	Alps of Savoy .	Sir Edmund G. Loder, Bart.
-30	9	21	?	Dublin Museum.
-28 $\frac{1}{2}$	9 $\frac{3}{8}$	18	Valley of Aosta .	C. H. Wilczek.
26 $\frac{3}{4}$	8 $\frac{3}{8}$	22 $\frac{1}{8}$	Do.	British Museum.
23 $\frac{1}{2}$	8 $\frac{3}{4}$	17 $\frac{1}{2}$	?	Do.
21 $\frac{1}{2}$	8 $\frac{5}{8}$	14 $\frac{7}{8}$	Valley of Aosta .	Do.
-17 $\frac{1}{2}$	8 $\frac{1}{2}$	13	Do.	Count E. Hoyos.

<sup>1</sup> Height at shoulder, 33 $\frac{5}{8}$ ; weight, 170 lbs.



Head of Arabian Ibex, from the Sinaitic Peninsula.

**ARABIAN IBEX** (*Capra nubiana*).

This species may be easily distinguished from both the Asiatic and the Alpine species by the form of the horns, which are very long, rather slender, and with the outer front angle much bevelled off, so that the proper front surface is very narrow, and its transverse knots proportionately short.

*Distribution*.—The mountains of Southern Arabia, Palestine, the Sinaitic Peninsula, Upper Egypt, and probably also those of Morocco and the interior of Senegambia. Arabian name, *beden*. Comparatively few European sportsmen have killed this handsome ibex, but it has been shot by E. N. Buxton.

ARABIAN IBEX (*Capra nubiana*)—*continued*.Head of Arabian Ibex, from Arabia ; Sclater, *P.Z.S.* 1897.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
50	9		Southern Arabia . . . . .	Capt. J. T. Brinkley.
42	$7\frac{1}{4}$		Arabia . . . . .	East India Club.
$41\frac{1}{2}$	..		Hadramut, S.E. Arabia . . . . .	J. Menges.
$39\frac{3}{4}$	$9\frac{7}{8}$		Markat . . . . .	Do.

**ARABIAN IBEX** (*Capra nubiana*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
39½	8⅞	19½	South-East Arabia	Hon. Walter Rothschild.
35½	6½	12	Sinaitic Peninsula	W. E. Pease.
35¼	7	15⅜	Do.	J. D. Cobbold.
—32⅞	6½	7	Do.	Captain John Marriott.
32¼	7	18½	Do.	E. H. Pease.
31⅜	8	13¼	Arabia	Dr. Percy Rendall.
31⅜	6½	13½	Sinaitic Peninsula	W. Moncreiffe.
31¼	6⅞	7	Do.	W. E. Pease.
29⅜	6⅜	9¼	Do.	E. H. Pease.
29	...	13	Do.	Hon. Walter Rothschild.
28½	7½	6	Do.	E. N. Buxton.
25¼	6	12	Do.	British Museum.
♀ 10⅜	3¼	2½	Do.	W. E. Pease.
♀ 8⅜	3⅞	5⅜	Do.	W. Moncreiffe.

The following specimens are of African origin :—

46⅞	8	...	North Africa	British Museum.
43	7¼	22	Suakin	Col. G. E. Lloyd, D.S.O.
42¼	9¼	15¼	Mountain Range of Assou- ribai, N.W. of Suakin	The late Major E. M. Barttelot.
41⅜	7⅝	17⅞	North Africa	Major W. H. Besant.
38⅞	7½	12½	Upper Egypt	Sir Edmund G. Loder, Bart.
38½	7½	27¼	Suakin	Col. G. E. Lloyd, D.S.O.
38¼	8	21	Do.	Capt. A. King.
35⅞	7⅞	12	Do.	W. P. Gore-Graham.
30½	8	17¼	Do.	Commander A. T. Hunt.

**ABYSSINIAN IBEX** (*Capra vali*).

This ibex, which inhabits the mountains of the interior of Abyssinia, is still very imperfectly known. Its most distinctive feature appears to be a prominent boss on the forehead.

25½	7¼	13	Abyssinia	Hon. Walter Rothschild.
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Skull and Horns of Sind Wild Goat. From A. O. Hume's specimen.

**PERSIAN WILD GOAT** (*Capra hircus ægagrus*).

**SIND WILD GOAT** (*Capra hircus blythi*).

The horns of the Persian wild goat, which appears to be the ancestral form of the domestic goat of Europe (*C. hircus*), differ from those of the various species of ibex by having no distinct front surface, but merely a sharp notched keel, representing the inner front angle of the ibex horn. In old males the beard is very long. The general colour of the upper parts is brownish gray in winter and reddish brown in summer, with the under parts white, and blackish brown and white markings on the face and limbs. Height at shoulder reaching to 37 inches.

The so-called Sind ibex (*C. hircus blythi*) appears to be a second local race of the species, inhabiting Sind and parts of Baluchistan, where it probably passes imperceptibly into the Persian race. It is distinguished mainly by a slight difference in the form of the horns.

*Distribution.*—The islands of South-Eastern Europe, and the mountains of South-Eastern Europe and South-Western Asia from the Caucasus through Persia to the confines of Baluchistan and Sind. Native Persian name, *pasang* (rock-footed).

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
55½	...	24	Persia	Carl Hagenbeck.
52¾	7¾	8¾	Sind .	A. O. Hume, C.B. (Shot by Col. F. Marston.) See illustration.
48½	8¾	13¾	Caucasus	British Museum.
-48	8	20½	Sind	J. D. Inverarity.
46¾	7½	14	Do. .	Sir Edmund G. Loder, Bart.
46½	8½	18¾	Asia Minor .	F. C. Selous.
46	7½	11	Sind .	Major C. S. Cumberland.
-45¾	8¾	9¾	Daghestan .	E. N. Buxton.
45½	8	11¾	Sind .	Col. J. Biddulph.
44½	8¾	21¾	Caucasus	British Museum.
44½	8½	11	?	Hume Collection, British Museum.
43¾	8¾	14½	Kurrachi District	A. O. Hume, C.B.
43	9½	...	Asia Minor .	F. C. Selous.
43	9	15¾	Taurus Mountains .	Sir Edmund G. Loder, Bart.
43	8½	22¾	?	J. Carr Saunders.
-42	9	...	?	The MacLaine of Lochbuie.
42	7	12	Sind .	J. D. Inverarity.
-41½	...	...	Do. .	Capt. E. C. Tidswell.
-40¾	...	...	?	Indian Museum.
39¾	9½	1½	Erzerum	British Museum.
39¾	7¾	27	Mekran Coast, near Ormara	A. O. Hume, C.B.
38	9¾	...	?	Major C. S. Cumberland.
-38	10½	15	Asia Minor .	Capt. John Marriott.
-38	...	...	?	Maharaja of Travancore, G.C.S.I.
36	8½	6¾	Baluchistan .	Hon. Walter Rothschild.
-35¾	8	11½	Do. .	Lieut.-Col. L. L. Fenton.
-35½	9	16	Daghestan .	Ford G. Barclay.



**WILD GOAT** (*Capra hircus ægagrus* and *blythi*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
35 $\frac{5}{8}$	9 $\frac{1}{8}$	13 $\frac{3}{8}$	Mount Ararat . .	British Museum.
35	8 $\frac{1}{4}$	6 $\frac{1}{4}$	Julfa, Persian Frontier	Prince Demidoff.
34 $\frac{1}{2}$	9 $\frac{1}{2}$	18	Baluchistan . .	Sir Victor Brooke's Collection. (Shot by Major Hogg.)
32 $\frac{1}{2}$	8 $\frac{3}{4}$	11 $\frac{3}{4}$	Julfa . . . .	Prince Demidoff.
32 $\frac{1}{2}$	9	13 $\frac{1}{2}$	North Persia .	Hon. C. Hardinge, C.B.
-31	7 $\frac{7}{8}$	15 $\frac{1}{4}$	Sind . . . .	Dr. Percy Rendall.
30 $\frac{3}{8}$	8 $\frac{1}{4}$	15 $\frac{3}{4}$	Julfa .	Prince Demidoff.
29 $\frac{1}{4}$	8 $\frac{3}{4}$	12	Asia Minor . .	H. O. Whittall.
29 $\frac{5}{8}$	9 $\frac{1}{4}$	8 $\frac{3}{8}$	Cilician Taurus, Asia Minor	C. G. Danford, British Museum.
-27	...	...	Antimilo . .	H. Toppin.
-26 $\frac{3}{8}$	...	...	Do. . . .	Marquis of Ivrea.
♀ 10 $\frac{7}{8}$	4 $\frac{3}{8}$	3 $\frac{3}{8}$	Caucasus	Sir Victor Brooke's Collection.

**DOMESTIC GOAT** (*Capra hircus typicus*).

52 $\frac{1}{2}$	10 $\frac{1}{2}$	40 $\frac{5}{8}$	Daghestan	Sir Edmund G. Loder, Bart.
44 $\frac{1}{4}$	6	29 $\frac{1}{4}$	Angora . . .	} Do.
40 $\frac{1}{2}$	9 $\frac{3}{8}$	...	Daghestan .	
-37	7 $\frac{1}{2}$	35	Meoble, N.B. .	Walter Jones.
-30 $\frac{1}{2}$	7 $\frac{1}{2}$	35	Do.	Do.
25 $\frac{1}{4}$	7 $\frac{3}{4}$	4	South Wales .	Major G. Palmer.
24	...	...	Joura . . . .	Marquis of Ivrea.
-16	6	13 $\frac{1}{2}$	Loch Ness, N.B.	C. V. A. Peel.



Head of Spanish Tur. Drawn from Abel Chapman's specimen.

**SPANISH TUR or IBEX (*Capra pyrenaica*).**

Although commonly designated an ibex, the Spanish wild goat has horns more like those of one of the Caucasian tur, and is therefore better designated as a species of that group. The horns, which have a sharp inner edge, are twisted in a very open semi-spiral, with the tips generally turned outwards, and are quite unlike those of the true ibex. In having dark and light markings on the limbs the species is, however, much more like the Persian wild goat than either of the Caucasian tur. The beard of the males varies greatly in size according to age and season. Height at shoulder from about 27 to 32 inches at the shoulder; weight, when clean, about 10 stone.

*Distribution.*—The Pyrenees and the high ranges of Central Spain, Andalusia, and Portugal. The typical form of the species inhabits the Pyrenees; those inhabiting the more southern parts may be distinguished as a separate race (*C. pyrenaica hispanica*).

SPANISH TUR or IBEX (*Capra pyrenaica*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
31	8 $\frac{3}{4}$	...	Pyrenees .	Sir Victor Brooke's Collection.
-30 $\frac{1}{4}$	9 $\frac{1}{2}$	23 $\frac{1}{2}$	Central Spain	Abel Chapman and W. J. Buck.
-29 $\frac{3}{4}$	8 $\frac{1}{4}$	23 $\frac{1}{4}$	Almeira .	H. Brinsley Brooke.
29 $\frac{1}{4}$	9 $\frac{1}{2}$	23 $\frac{1}{4}$	Sierra Nevada .	Abel Chapman.
28	9 $\frac{1}{4}$	23 $\frac{3}{8}$	Spain .	British Museum.
27 $\frac{3}{4}$	9	25	Do.	Sir Edmund G. Loder, Bart.
27 $\frac{1}{2}$	10 $\frac{3}{8}$	19 $\frac{1}{2}$	Pyrenees .	British Museum.
25 $\frac{5}{8}$	8 $\frac{1}{2}$	16 $\frac{5}{8}$	Spain .	Hon. Walter Rothschild.
24 $\frac{1}{2}$	10	14	Val d'Arras . .	E. N. Buxton.
23 $\frac{3}{8}$	8	16	Southern Spain . .	Pablo Larios.
22 $\frac{3}{4}$	9 $\frac{1}{2}$	18 $\frac{3}{4}$	Val d'Arras . .	E. N. Buxton.
22	7 $\frac{3}{4}$	14	Spain .	Pablo Larios.
16	7 $\frac{1}{2}$	11	Do.	Col. R. J. Heber-Percy.
- ♀ 10 $\frac{3}{4}$	5 $\frac{5}{8}$	7 $\frac{1}{2}$	Val d'Arras .	A. E. Leatham.
♀ 9 $\frac{1}{2}$	5 $\frac{3}{8}$	6 $\frac{1}{4}$	Do. . . .	E. N. Buxton.



Skull and Horns of West Caucasian Tur. Shot by St. George Littledale.

**WEST CAUCASIAN TUR or IBEX (*Capra caucasica*).**

Of the two peculiar kinds of wild goats inhabiting the Caucasus, and locally known as tur, the present species is easily recognised by the approximation in the form of its horns (especially in immature individuals) to those of true ibex, and the uniform bright chestnut-brown colour of the hair of the adult male in the summer coat; the chin, beard, and lower parts of the legs being alone black. Although the horns present a considerable resemblance to those of ibex, they are decidedly thicker, have a different curvature, and show distinct knobs, or knots only in their upper half. In young males the knots extend the whole length of the front of the horns, and the long winter coat is a pale drab colour. Height at shoulder about  $37\frac{1}{2}$  inches.

*Distribution.*—The western half of the main chain of the Caucasus. Certain peculiarly-shaped horns appear to indicate the existence of a hybrid race between this species and the East Caucasian tur in the Central Caucasus.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
40 $\frac{1}{8}$	12 $\frac{5}{8}$	15 $\frac{1}{4}$	Caucasus . . .	St. George Littledale.
36 $\frac{7}{8}$	11 $\frac{5}{8}$	27 $\frac{5}{8}$	Do. . .	Do.
34 $\frac{3}{4}$	11 $\frac{5}{8}$	22 $\frac{7}{8}$	Do. . .	Do.
34 $\frac{1}{2}$	12	22	Kouban, Caucasus . .	Prince Demidoff.
33 $\frac{1}{4}$	10 $\frac{5}{8}$	26 $\frac{3}{4}$	Do. . .	St. George Littledale.
32 $\frac{1}{2}$	11 $\frac{3}{4}$	25 $\frac{1}{2}$	Do. . .	Do.
32 $\frac{1}{2}$	11 $\frac{1}{2}$	25 $\frac{1}{4}$	Do. . .	Prince Demidoff.
31 $\frac{1}{2}$	12 $\frac{1}{2}$	24 $\frac{1}{2}$	Do. . .	Do.
30 $\frac{5}{8}$	11 $\frac{3}{8}$	16 $\frac{3}{8}$	Do. . .	Sir Edmund G. Loder, Bart.
30	11 $\frac{1}{2}$	19 $\frac{1}{2}$	Do. . .	Hon. Walter Rothschild.
26 $\frac{3}{4}$	11 $\frac{1}{2}$	20 $\frac{1}{2}$	Do. . .	St. George Littledale.
<sup>1</sup> 22 $\frac{3}{4}$	10 $\frac{7}{8}$	22 $\frac{1}{4}$	Do. . .	Do.
19 $\frac{7}{8}$	10 $\frac{5}{8}$	16 $\frac{1}{4}$	Caucasus . . .	P. A. Holt, British Museum.

<sup>1</sup> Presumed hybrid between *C. caucasica* and *C. cylindricornis*.



Head of East Caucasian Tur.

**EAST CAUCASIAN TUR** (*Capra cylindricornis*).

A very different-looking creature from the last is the wild goat commonly designated by sportsmen the "Caucasian bharal"; this name being derived from the resemblance of its horns to those of the true Himalayan bharal. In spite of this point of resemblance, its affinities are, however, evidently with the goats, although it not improbably indicates a step from the more typical members of that group in the direction of the sheep. In addition to the peculiar form of its horns, this tur is characterised by the extreme shortness of the beard, which merely forms a curling fringe on each side of the chin, instead of the long central tuft observable at certain seasons in the West Caucasian species. The general colour of the fur is uniform dull brown, except on the chin, the tip of the tail, and portions of the legs, where it is blackish brown. Height at shoulder about 3 feet.

*Distribution.*—The Eastern Caucasus, from Kasbek to Daghestan.

It has been killed by few English sportsmen.

EAST CAUCASIAN TUR (*Capra cylindricornis*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
38 $\frac{1}{2}$	12 $\frac{1}{2}$	...	Eastern Caucasus .	Hon. Walter Rothschild.
36	13	...	Daghestan . . .	J. D. Cobbold.
34 $\frac{1}{2}$	10 $\frac{7}{8}$	13 $\frac{1}{2}$	Caucasus . . .	Major Talbot.
33 $\frac{3}{8}$	12	19 $\frac{3}{4}$	Do. . .	British Museum.
32 $\frac{1}{2}$	10 $\frac{1}{2}$	13 $\frac{1}{2}$	Kasbek . . .	Prince Demidoff.
32	13	19	Caucasus	Berthold Smith.
31 $\frac{1}{2}$	12	7 $\frac{3}{4}$	Do. . . .	Ford G. Barclay.
31	11	28	Northern Caucasus	Capt. H. H. P. Deasy.
30	12	17	Daghestan .	Ford G. Barclay.
29 $\frac{1}{2}$	12	20	Caucasus	Sir Edmund G. Loder, Bart.
28 $\frac{1}{2}$	11	16 $\frac{1}{2}$	Do.	Sir Victor Brooke's Collection.
26 $\frac{1}{2}$	10 $\frac{5}{8}$	18	Do.	Sir Edmund G. Loder, Bart.
26	11	19	Do.	Major C. S. Cumberland.
26	13 $\frac{1}{4}$	26	Do. .	Clive Phillipps-Wolley.
22 $\frac{1}{4}$	10 $\frac{3}{4}$	19 $\frac{1}{2}$	Northern Caucasus .	Arnold Pike.
20 $\frac{1}{2}$	10	11 $\frac{1}{2}$	Caucasus . . .	H. R. H. le Duc d'Orléans.



Head of Male Bharal.

**BHARAL** (*Ovis nahura*).

Having horns not unlike those of the East Caucasian tur, the bharal, or blue sheep of Tibet, differs from the goats by the absence of a beard and a strong odour in the males, and on account of these and other points of difference from the goats is placed among the sheep, of which group it forms a very aberrant member. The most distinctive external features are the comparatively smooth and olive-coloured horns, which curve at first outwards and then backwards from the sides of the head; and the bluish gray colour of the thick fur of the back and sides; the flanks, under parts, and legs being handsomely marked with black and white. Height at shoulder about 33 inches; weight about 130 lbs. In the complete absence of glands on the face the bharal differs from the more typical sheep and resembles the goats.

*Distribution*.—Tibet, from Shigar, in Baltistan, and near Sanju, south-east of Yarkand, to Moupin in Eastern Tibet, and from the main axis of the Himalaya, or locally some distance south of the same, to the Kuenlun and Altyn Tag; in summer usually met with at elevations between 14,000 and 16,000 feet, and apparently never found below about 10,000 feet.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
—32	...	..	?	The late B. H. Hodgson, <i>P.Z.S.</i> 1840, p. 66.
31½	13½	22½	Ladak	J. Campbell of Kilberry.



**BHARAL** (*Ovis nahura*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
30 $\frac{7}{8}$	12 $\frac{1}{4}$	21 $\frac{7}{8}$	Gurhwal	A. O. Hume, C. B.
-30 $\frac{1}{2}$	11	15 $\frac{1}{2}$	Ladak	P. H. G. Powell-Cotton.
30	11	24	Hanle, Spiti	Capt. B. L. Carew.
29 $\frac{3}{4}$	12 $\frac{1}{2}$	22 $\frac{1}{2}$	Gurhwal	A. O. Hume, C. B.
29 $\frac{1}{2}$	11 $\frac{5}{8}$	25 $\frac{1}{2}$	?	H. R. H. the Duke of Saxe-Coburg and Gotha.
29 $\frac{1}{2}$	12	26 $\frac{1}{2}$	Northern Sikim	Surg.-Capt. A. Pearse.
-29	12	...	?	Major A. E. Ward.
-29	...	...	?	Lucknow Museum.
-28 $\frac{1}{2}$	...	...	?	Capt. H. Trevor.
28 $\frac{1}{2}$	12 $\frac{1}{4}$	26 $\frac{1}{2}$	Hanle	F. W. H. Walshe.
-28 $\frac{1}{2}$	10 $\frac{1}{2}$	...	?	Indian Museum.
28	11	20 $\frac{1}{4}$	?	Hume Collection, British Museum.
28	11	16	Hanle	Arnold Pike.
27 $\frac{3}{4}$	10 $\frac{1}{4}$	10	Ladak	Capt. G. Campbell.
27 $\frac{1}{2}$	11	21 $\frac{1}{2}$	Do.	St. George Littledale.
-27	...	...	Do.	Otho Shaw.
27	11 $\frac{1}{2}$	28	Tibet	Major C. S. Cumberland.
26 $\frac{3}{4}$	11 $\frac{1}{2}$	23	Ladak	Col. F. C. Lister-Kay.
26 $\frac{1}{2}$	10 $\frac{1}{2}$	20	?	A. S. Crum.
26 $\frac{1}{4}$	11 $\frac{7}{8}$	23	?	Sir Victor Brooke's Collection.
26 $\frac{1}{4}$	10 $\frac{3}{4}$	22	?	Sir Edmund G. Loder, Bart.
26	10 $\frac{3}{4}$	25 $\frac{1}{2}$	?	R. Johnstone.
26	10 $\frac{1}{4}$	20 $\frac{1}{2}$	?	Capt. W. H. Williamson.
25 $\frac{7}{8}$	12 $\frac{1}{2}$	31 $\frac{1}{2}$	East of Padam, Zanskar	Capt. M. S. Wellby.
25 $\frac{7}{8}$	11 $\frac{1}{4}$	18 $\frac{1}{2}$	?	Capt. C. B. Vandeleur.
-25 $\frac{1}{2}$	11 $\frac{1}{2}$	...	Ladak	Major-General Alexander A. A. Kinloch.
25 $\frac{3}{8}$	11 $\frac{1}{4}$	25 $\frac{1}{4}$	Do.	St. George Littledale.
-25 $\frac{1}{4}$	11 $\frac{1}{2}$	24 $\frac{1}{2}$	Do.	Capt. H. W. Codrington.
25	10	25 $\frac{1}{4}$	?	Major H. C. Morland.
-24 $\frac{1}{2}$	12 $\frac{1}{4}$	26	?	J. Carr Saunders.

**BHARAL** (*Ovis nahura*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-24 $\frac{1}{2}$	...	...	Upper Indus Valley	Col. J. Biddulph.
24 $\frac{1}{2}$	11	26 $\frac{1}{2}$	?	J. R. Carden.
24 $\frac{1}{2}$	11	18	Shyok Valley	J. V. Phelps.
-24 $\frac{1}{2}$	...	...	Do.	E. L. Phelps.
24 $\frac{3}{8}$	10 $\frac{7}{8}$	27 $\frac{1}{4}$	South-east of Leh	Major J. A. Orr-Ewing.
24	11	22 $\frac{3}{4}$	Nepal	The late B. H. Hodgson, British Museum.
24	11 $\frac{1}{2}$	25	Ladak	P. Church.
24	11 $\frac{1}{2}$	...	?	Maharaja of Travancore, G. C. S. I.
-23 $\frac{3}{4}$	11 $\frac{3}{4}$	...	Kumaon	W. H. Lane.
23 $\frac{1}{2}$	10	18	Ladak	Capt. F. E. S. Adair.
23 $\frac{1}{2}$	9 $\frac{1}{2}$	17 $\frac{1}{4}$	Hanle	Capt. H. W. Codrington.
23 $\frac{1}{2}$	13	25	?	Dr. W. P. Y. Bainbrigge.
23 $\frac{3}{8}$	11 $\frac{3}{4}$	24 $\frac{1}{4}$	?	Sir Robert Harvey, Bart.
23	12	26	Ladak	H. R. H. the Duke of Saxe- Coburg and Gotha.
23	10 $\frac{1}{2}$	23 $\frac{3}{4}$	Do.	Reginald Beech.
♀ 7	4 $\frac{1}{2}$	8 $\frac{3}{4}$	Northern Sikim	Hon. Walter Rothschild.



Head of Male Arui.

**ARUI or UDAD (*Ovis lervia*).**

The only wild sheep found throughout the continent of Africa is the arui, or fechtal of the Arabs, the udad or Barbary sheep of naturalists; a species with horns not very unlike those of the bharal, and also lacking glands on the face, but readily distinguished by its uniformly tawny colour, the fringe of long hair depending from the throat, chest, and the upper portion of the fore-legs, and the unusual length of the tail, which exceeds that of all other wild sheep. In the length of this appendage the arui approaches domesticated sheep, of which, however, it is not likely to be the ancestor. Height at shoulder about 3 feet 3 inches.

*Distribution.*—The mountains of Northern Africa, from Egypt to Morocco. This sheep is very difficult to find on its own ground.

ARUI or UDAD (*Ovis lervia*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
29 $\frac{1}{8}$	12 $\frac{1}{2}$	19	Algeria	V. Cholmondeley.
28 $\frac{1}{2}$	11 $\frac{1}{2}$	18	Do.	Hon. John Ward, British Museum.
28 $\frac{1}{2}$	11 $\frac{5}{8}$	18 $\frac{1}{2}$	Algeria	Sir Edmund G. Loder, Bart.
-28	11 $\frac{1}{2}$	16 $\frac{1}{2}$	S. Tunisia	J. J. S. Whitaker.
-27 $\frac{3}{4}$	11 $\frac{1}{4}$	14 $\frac{9}{10}$	Algeria	Viscount Edmond de Poncins.
26 $\frac{3}{8}$	10 $\frac{3}{4}$	15 $\frac{1}{2}$	North Africa	British Museum.
26	11	17 $\frac{3}{4}$	Do.	Do.
25 $\frac{1}{2}$	11 $\frac{1}{2}$	17 $\frac{1}{2}$	Algeria	Hon. John Ward.
25 $\frac{1}{2}$	11 $\frac{1}{2}$	17	Do.	F. de Murietta.
25 $\frac{1}{2}$	10 $\frac{5}{8}$	16	Do.	Capt. G. J. Cuthbert.
-25 $\frac{1}{2}$	12 $\frac{1}{8}$	20 $\frac{1}{2}$	Do.	Capt. John Marriott.
-25 $\frac{1}{2}$	11	18	Tunisia	A. E. Pease.
25	11 $\frac{1}{4}$	13 $\frac{1}{2}$	North Africa	W. E. Pease.
24 $\frac{1}{2}$	10 $\frac{1}{2}$	19 $\frac{1}{2}$	Do.	Hon. R. A. Ward.
- ♀ 20 $\frac{1}{2}$	10	16	Algeria	A. E. Pease.
- ♀ 19	7	17	Tunisia	Capt. John Marriott.
- ♀ 17	7 $\frac{1}{2}$	16 $\frac{1}{8}$	Atlas Mountains	Viscount Edmond de Poncins.



Head of American Bighorn, from W. F. Sheard's specimen.

**AMERICAN BIGHORN (*Ovis canadensis*).**

The bighorn of the American continent, inclusive of its local races (frequently regarded as distinct species), is a large sheep, distinguished from the Asiatic argalis, among other features, by the comparative smoothness of the horns, in which the outer front angle is prominent, and the inner one rounded off, and also by the smaller size of the face-glands. There is a well-marked whitish patch on the rump, but the amount of white on the under parts and legs shows considerable local variation. In the typical Rocky Mountain race (*O. canadensis typica*) the ears are long and pointed, with short hair, and the horns, which are very heavy, diverge but little outwards, and generally have the tips broken. The Californian *O. canadensis nelsoni* is a paler southern race. On the other hand, in *O. canadensis stonei* of the North-West Territories the colour of the back is very dark, and the white on the belly and legs sharply defined. And both in this race and the light-coloured *O. canadensis dalli* of Alaska the horns are lighter, more divergent, and sharper pointed, while the ears tend to become shorter, blunter, and more hairy. Height at shoulder about 3 feet 2 inches. Weight about 350 lbs.

The horns of the ewes are very small in comparison to those of the rams, seldom measuring more than 15 inches on the curve from base to tip. Large male horns are now difficult to obtain, and of late years it is seldom that those of fresh-killed specimens are seen exceeding 38 inches on the curve from tip to tip. American sportsmen are keen to obtain horns of large basal girth; but these, as will be seen from the

following table, rarely exceed 16 inches. The MacLaine of Lochbuie possesses a specimen whose girth according to his own measurement is 19 inches.

*Distribution.*—North America, from the Rocky Mountains southwards to Sonora, Northern Mexico, and California, and northwards to Alaska and the shores of Bering Sea. The Alaskan race, for at least some portion of the year, is snow-white.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-52½	18½	...	The Selkirks, B.C., 1885	W. F. Sheard. (See illustration.)
-45	...	...	?	W. Grant Mackay.
-42½	16½	25¾	Lower California	George H. Gould.
42	16	(tips much worn)	Wyoming	Picked up by T. W. H. Clarke.
-...	17½	...	Do.	T. W. H. Clarke.
-41½	15	...	Kootenay, B.C.	Measured by John Fannin, Provincial Museum, B.C.
-40¾	16½	...	Yellowstone	British Museum.
40½	15½	20¾	?	Sir Edmund G. Loder, Bart.
-40	15½	...	Rocky Mountains	Otho Shaw.
40	15	21½	British Columbia	J. W. R. Young.
39⅝	15⅝	...	Colorado	St. George Littledale.
39½	16½	24¾	Montana	British Museum.
39½	15½	19	?	Sir Edmund G. Loder, Bart.
-39	15¾	...	?	W. A. Baillie-Grohman.
38⅝	15½	22	?	Gerald Buxton.
38½	16⅝	...	Bighorn Mountains	H. Seton-Karr.
38½	15½	19½	Montana	Edmund Littledale.
38½	16	19	N.W. Territories	S. Ratcliff.
38	17	...	Alberta, N.W.T.	Arnold Pike.
38	15	...	British Columbia	Captain F. Cookson.
-38	16½	...	Do.	Major C. C. Ellis.
37¾	15⅞	23⅝	Mexico	J. A. H. Drought.
-37¾	16½	22½	British Columbia	J. O. Shields.
37½	15½	16	Do.	J. Turner-Turner.
-37	16	31	Wyoming	T. W. H. Clarke.

AMERICAN BIGHORN (*Ovis canadensis*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
37	16 $\frac{1}{4}$	...	Montana . . .	Major Maitland Kirwan.
37	16 $\frac{3}{8}$	16	British Columbia .	R. H. Venables Kyrke.
37	15 $\frac{1}{2}$	18 $\frac{1}{2}$	Wyoming . . .	Lord Rodney.
36 $\frac{3}{4}$	19	15	British Columbia	C. H. Kennard.
36 $\frac{3}{4}$	15 $\frac{1}{4}$	22 $\frac{1}{2}$	Wyoming . . .	Moreton Frewen.
36 $\frac{1}{2}$	14 $\frac{1}{2}$	...	Do.	Gerald Buxton.
36 $\frac{1}{2}$	16	...	?	Thomas Bate.
36 $\frac{1}{2}$	14	...	?	J. D. Cobbold.
36 $\frac{1}{2}$	14 $\frac{3}{8}$	18 $\frac{1}{2}$	?	Gerald Buxton.
36	14 $\frac{3}{4}$	16 $\frac{1}{2}$	Montana . . .	R. H. Sawyer.
36	15 $\frac{1}{2}$	...	Alberta, N.W.T. . .	Arnold Pike.
36	14 $\frac{3}{4}$	16	Wyoming	Captain G. Dalrymple White.
-35 $\frac{7}{8}$	14 $\frac{3}{4}$	17 $\frac{1}{2}$	Do. . . .	Count E. Hoyos.
35 $\frac{3}{4}$	15 $\frac{1}{2}$	18 $\frac{1}{2}$	British Columbia .	G. Wrey.
35 $\frac{3}{4}$	13 $\frac{3}{4}$	17 $\frac{1}{2}$	Do. . . .	Hon. S. Tollemache.
35 $\frac{1}{2}$	16	21	Do.	T. P. Kempson.
35 $\frac{1}{4}$	12 $\frac{1}{4}$	16	California	Sir Victor Brooke's Collection.
35 $\frac{1}{4}$	15 $\frac{1}{4}$	18 $\frac{1}{2}$	British Columbia . .	Sir Peter Walker, Bart.
35	14	18 $\frac{1}{2}$	Do. . . .	Admiral Sir Michael Culme-Seymour, Bart.
-35	15	19 $\frac{3}{4}$	Wyoming . . .	Count Scheibler.
35	14	16	Do. . . .	Gerald Hardy.
34 $\frac{1}{2}$	14 $\frac{3}{4}$	19	S.E. Montana	J. A. Jameson.
34 $\frac{1}{2}$	14 $\frac{1}{2}$	...	California . . . .	G. P. Fitzgerald.
-34	16	17	N.W. Wyoming . . .	A. Rogers.
34	16 $\frac{1}{4}$	20	British Columbia Border	Barclay Bonthron.
33 $\frac{1}{2}$	15 $\frac{1}{4}$	...	British Columbia .	Admiral Sir Michael Culme-Seymour, Bart.
33	15 $\frac{3}{8}$	18	Do.	Capt. E. G. Verschöyle.
33	14 $\frac{3}{4}$	24 $\frac{1}{2}$	Wyoming . . . .	Lieut.-Col. Hon. W. Coke.
33	14 $\frac{1}{2}$	22	?	F. H. B. Ellis.
33	14	23	British Columbia . .	T. P. Kempson.

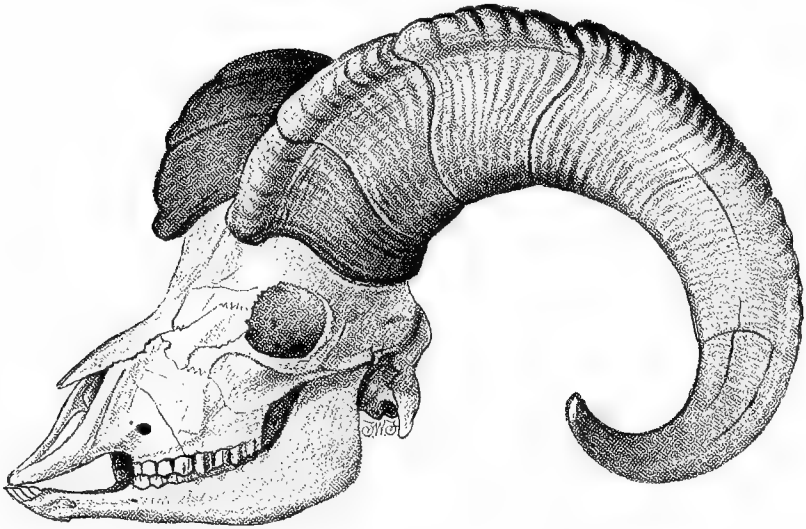
**AMERICAN BIGHORN (*Ovis canadensis*)—continued.**

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
33	15 $\frac{1}{2}$	22	British Columbia .	A. E. Butter.
32 $\frac{3}{4}$	15 $\frac{1}{2}$	17 $\frac{1}{2}$	?	C. G. R. Lee.
-32 $\frac{1}{2}$	14 $\frac{5}{8}$	19 $\frac{1}{2}$	Fraser River, B.C.	A. E. Leatham.
32 $\frac{1}{2}$	15	17 $\frac{1}{2}$	Lower California	G. Barnardiston.
32	15 $\frac{1}{4}$	19 $\frac{1}{2}$	British Columbia .	J. W. Wood, jun.
32	14 $\frac{3}{4}$	17 $\frac{1}{4}$	Yellowstone River .	British Museum.
31 $\frac{1}{2}$	14 $\frac{1}{2}$	17 $\frac{1}{2}$	N.W. Territory	Major Algernon Heber-Percy.
31	17 $\frac{1}{2}$	...	Grand Encampment, Wyoming	Frank Cooper.
-31	13	22	British Columbia .	T. E. Buckley.
30 $\frac{3}{4}$	15	23	?	Hon. Walter Rothschild.
30 $\frac{1}{2}$	15 $\frac{3}{4}$	about 17 $\frac{1}{2}$	Lower California .	Ely Quilter.
30 $\frac{1}{2}$	15 $\frac{1}{2}$	18	Wyoming	J. L. Scarlett.
-30 $\frac{1}{2}$	14	15 $\frac{1}{2}$	Do.	Hugh Peel.
30	15 $\frac{1}{2}$	14	Alberta, N.W.T.	F. C. Williamson.

**ALASKAN BIGHORN (*Ovis canadensis dalli*).**

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
34	12 $\frac{5}{8}$	18 $\frac{1}{8}$	Alaska	Rowland Ward.
33	12 $\frac{3}{4}$	15	Do.	Hon. Walter Rothschild.
32 $\frac{1}{2}$	13 $\frac{1}{4}$	20 $\frac{1}{2}$	Do.	J. T. Studley, British Museum.
♀ 9 $\frac{1}{8}$	4 $\frac{7}{8}$	8	Do.	Do.





Skull and Horns of Male Kamschatkan Bighorn.

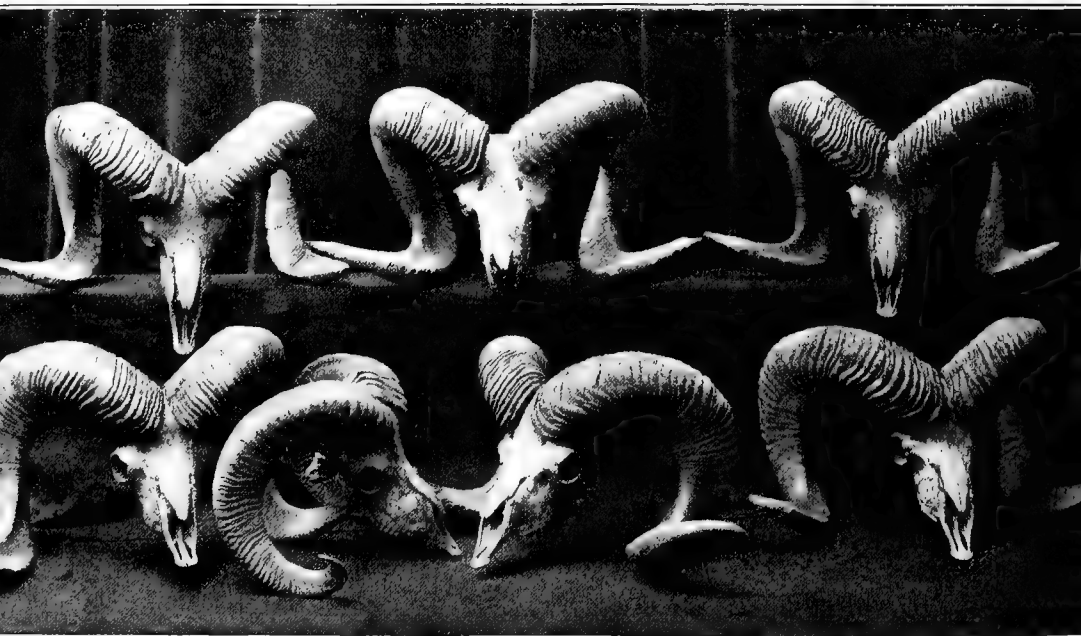
**KAMSCHATKAN BIGHORN** (*Ovis canadensis nivicola*).

Although the Kamschatkan wild sheep can be readily distinguished from the Rocky Mountain bighorn (*O. canadensis typica*) by the slenderness of the horns at the points, and their wider tip-to-tip measurement, as well as by shorter, blunter, and more thickly haired ears, the shorter face, the longer hair of the body, and the inferior size of the white patch on the rump, yet there are several varieties of the bighorn from the more northern districts of America which tend more or less completely to bridge over these points of difference. Among these are the Alaskan bighorn (*O. canadensis dalli*) and the N.W. bighorn (*O. canadensis stonei*), in which the horns are of the Kamschatkan type, and the ears are shorter than in the Rocky Mountain race. These transitions indicate that all the bighorns are essentially local modifications of the same animal; the Kamschatkan form being, as might be expected from its isolation, the most aberrant. Like the Alaskan race, the Kamschatkan bighorn appears, at least sometimes, to turn white in winter. Height at shoulder about 37 or 38 inches; weight about 330 lbs.

*Distribution.*—Kamschatka, and the Stanovoi Mountains as far south as the sources of the Utschuri River; perhaps also in parts of Siberia.

**KAMSHATKAN BIGHORN** (*Ovis canadensis nivicola*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-38	13½	26	Kamschatka . . .	Dr. F. H. H. Guillemard's party in the "Marchesa," <i>P.Z.S.</i> 1885, p. 675.
-35½	14	26½	Do. . . .	Do.
34½	11¾	17¾	Do. . . .	British Museum.
34	13½	23½	Do. . . .	Hon. Walter Rothschild.
32¾	13½	23	Do. . . .	Sir Edmund G. Loder, Bart.
31½	14	26	Do. . . .	Dublin Museum.
31½	13½	21	Cape Chepunske . . .	Col. J. Biddulph.
31½	13¾	24	Kamschatka . . .	Dublin Museum.
27½	13½	25½	Do. . . .	Rowland Ward.
♀ 10¾	5	14½	Do. . . .	Hon. Walter Rothschild.



Skulls and Horns of Siberian Argali, from specimens shot in the Altai by Major C. S. Cumberland.



Head of Marco Polo's Sheep. From David T. Hanbury's specimen.

#### MARCO POLO'S SHEEP (*Ovis poli*).

In common with the following members of the genus *Ovis*, this splendid sheep has the transverse wrinklins of the horns well developed, and small glands are present on the face. The horns of the adult male are characterised by their comparative slenderness and great length, forming a spiral of more than one complete circle, with the front angles typically well developed. The hind-quarters show a large amount of white, extending over the greater part of the thighs; and in winter the throat is furnished with a voluminous ruff of long white hairs, which disappears in summer. Height at shoulder about 4 feet, or perhaps rather less; weight of adult male about 22 stone.

*Distribution*.—Typically the plateau of the Pamirs in Central Asia, but represented by a closely allied race (*O. poli karelini*) in the Thian Shan range of Turkestan, in which the horns are generally somewhat shorter, and may have the front outer angle rounded off. This sheep was first definitely made known in England by

specimens obtained during the Second Yarkand Mission under the late Sir D. Forsyth ; since which date it has been killed by Mr. St. George Littledale, Major C. S. Cumberland, Capt. H. Bower, Viscount de Poncins, and many other sportsmen.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-75	16	54½	Pamir . . . .	Field-Marshal Lord Roberts, V.C.
73	15	48	Little Pamir . .	The late Col. H. C. B. Tanner.
-71	15½	53¾	Great Pamir . . .	Viscount Edmond de Poncins.
70	17	52	Do. .	Maharaja of Kuch Behar.
69½	15¼	56	?	Marquis of Lansdowne, K.G., K.C.M.G.
69½	14½	39	Tagdumbash .	Sir Edmund G. Loder, Bart.
68½	15	35¾	?	Lewis Flower.
68	17	43	Pamir . . . .	Col. R. Pole Carew, C.B.
-68	16	52	?	Indian Museum.
-67¾	16	53¾	?	Col. J. Biddulph, Indian Museum.
67	16½	42	Pamir . . . .	Col. R. Pole Carew, C.B.
-67	16	...	Thian Shan . . .	Maharaja of Travancore, G.C.S.I.
67	15½	42½	?	Duke of Westminster.
66⅞	15⅞	46	?	Sir Edmund G. Loder, Bart.
66⅞	13⅞	46½	Valley between Little and Great Pamir	A. O. Hume, C.B.
66	16¼	47	Do.	Do.
66	15¼	44	Do.	Hume Collection, British Museum.
66	15¾	42	?	A. Leslie Renton.
65½	16	53	Great Pamir (16,000 feet) .	Col. T. E. Gordon, British Museum.
-65	16	41	Central Asia . . .	Dublin Museum.
65	16½	49½	?	Major C. F. Blane.
-65	...	...	?	St. George Littledale (presented to the Empress of Russia).
64½	16½	46	Pamir . . . .	Major C. C. Ellis.
64¼	16½	41	Do. . . .	W. Lawrence.
64¼	15¼	39	Do. . . .	H. C. V. Hunter.
64	15½	50	Little Pamir . . .	R. P. Cobbold.
64	15	49	?	Duke of Portland.

MARCO POLO'S SHEEP (*Ovis poli*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
63 $\frac{5}{8}$	16 $\frac{3}{8}$	42 $\frac{1}{2}$	Pamir . . .	Hon. Walter Rothschild.
63 $\frac{1}{2}$	15 $\frac{3}{4}$	57 $\frac{1}{2}$	Valley between Great and Little Pamir	A. O. Hume, C.B.
63 $\frac{3}{8}$	15 $\frac{3}{8}$	46 $\frac{1}{4}$	Tagdumbash .	Earl of Dunmore.
63	16	49 $\frac{1}{2}$	Little Pamir	R. P. Cobbold (Bachelors' Club).
62 $\frac{3}{4}$	16 $\frac{1}{4}$	51	Tagdumbash	T. W. Greenfield.
62 $\frac{1}{2}$	15	57	?	Sir Edmund G. Loder, Bart.
62	15 $\frac{1}{4}$	40	?	Hon. Charles Ellis.
61 $\frac{1}{2}$	15 $\frac{1}{2}$	46 $\frac{1}{4}$	Tagdumbash .	E. L. Phelps.
60 $\frac{3}{4}$	15 $\frac{3}{4}$	46 $\frac{7}{8}$	Pamir .	St. George Littledale.
60	16	49 $\frac{1}{2}$	Little Pamir .	R. P. Cobbold.
60	15 $\frac{3}{4}$	46 $\frac{3}{4}$	Tagdumbash	T. W. Greenfield.
60	15 $\frac{1}{2}$	46	Do. .	P. Church.
-60	...	...	?	Capt. H. Bower.
-60	17	...	Tagdumbash	H. Dauvergne.
-60	16	52	Do.	H. Lennard.
59 $\frac{3}{4}$	15 $\frac{3}{4}$	45 $\frac{3}{8}$	Pamir	Earl of Dunmore.
59	16 $\frac{1}{4}$	47	?	Viscount Powerscourt.
59	15 $\frac{3}{4}$	41	?	Martyn Kennard.
59	14	42 $\frac{3}{4}$	Tagdumbash	David T. Hanbury.
58	16	43	Do.	Do.
57 $\frac{3}{4}$	15	46 $\frac{3}{4}$	?	Major-General Sir Arthur Ellis, K.C.V.O.
57 $\frac{3}{4}$	14 $\frac{3}{4}$	50	Pamir	Reginald Beech.
57 $\frac{1}{2}$	16 $\frac{3}{8}$	49 $\frac{1}{4}$	?	W. Lawrence.
57 $\frac{1}{2}$	14 $\frac{3}{4}$	48	Pamir	Reginald Beech.
57	15 $\frac{1}{4}$	42	Do.	Hon. R. A. Ward.
56 $\frac{7}{8}$	15 $\frac{3}{8}$	35 $\frac{1}{2}$	Do.	St. George Littledale.
56	17 $\frac{1}{2}$	42	Do. .	E. L. Phelps.
56	15	44	Do. .	E. P. Tennant.
55 $\frac{3}{4}$	15 $\frac{3}{4}$	43	?	J. Carr Saunders.

MARCO POLO'S SHEEP (*Ovis poli*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
55 $\frac{5}{8}$	16 $\frac{1}{2}$	43	Pamir	Major C. S. Cumberland.
55 $\frac{1}{2}$	16 $\frac{7}{8}$	44	Do.	Sir Edmund G. Loder, Bart.
55 $\frac{1}{2}$	15 $\frac{1}{8}$	39	?	The late W. F. Webb.
55	16	44	?	H. R. H. le Duc d'Orléans.
54 $\frac{7}{8}$	15 $\frac{1}{4}$	48 $\frac{3}{8}$	Pamir . . .	Sir Victor Brooke's Collection.
54 $\frac{1}{4}$	16 $\frac{1}{8}$	34 $\frac{3}{4}$	West Mongolia .	St. George Littledale.
54	16 $\frac{3}{4}$	39	?	Viscount Fincastle, V.C.
53 $\frac{7}{8}$	15 $\frac{5}{8}$	43 $\frac{3}{4}$	Lake Karakol	St. George Littledale.
53	14 $\frac{1}{4}$	45	Tagdumbash	Major H. C. Morland.
53	...	...	?	Lucknow Museum.
-52	16	41	Tagdumbash	H.M. the King of Italy.
52	15 $\frac{1}{2}$	39	Do.	Capt. J. Manners-Smith, V.C., C.I.E.
51 $\frac{1}{4}$	15	48	Do.	J. G. Millais.
51	15 $\frac{1}{4}$	38 $\frac{3}{4}$	Do. . .	A. Leslie Renton.
50 $\frac{1}{2}$	15	42 $\frac{3}{4}$	Altai Plateau, Pamir .	Capt. J. Manners-Smith, V.C., C.I.E., British Museum.
- ♀ 14.7	5.90	15.75	Great Pamir .	Viscount Edmond de Poncins.
♀ 10 $\frac{1}{2}$	5 $\frac{1}{2}$	13 $\frac{1}{2}$	Tagdumbash	David T. Hanbury.



Skull and Horns of Siberian Argali.  
From a specimen shot by St. George Littledale in the Altai.

**SIBERIAN ARGALI or AMMON SHEEP (*Ovis ammon*).**

Closely allied to Marco Polo's sheep, but distinguished by the thicker and less expanded horns, which often have the outer front angle much rounded off, and the wrinklins very fine. A more or less distinct white patch on the rump, not extending on to the thigh, which is dark-coloured like the back; no ruff on the throat, even in the long winter coat. In summer the coat of old males, which is very short, tends to become more or less light-coloured all over. Height at shoulder from about 45 inches to 4 feet; weight from about 250 to 350 lbs.

As in the Tibetan race, considerable individual variation may be noticed in the horns, some having the outer front angle much more developed than usual; it does not appear that these differences can be accounted for by age.

*Distribution.*—In former times apparently extending from the Baikal Mountains in the south of Eastern Siberia through Northern Mongolia to the Semipalatinsk Altai; now chiefly restricted to the two latter localities.

SIBERIAN ARGALI or AMMON SHEEP (*Ovis ammon*)—*continued*.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality	Owner.
62 $\frac{1}{4}$	19 $\frac{3}{4}$	38 $\frac{1}{4}$	Altai .	St. George Littledale.
62	19	38 $\frac{3}{4}$	Do. . .	H. J. Elwes.
61 $\frac{1}{2}$	19 $\frac{1}{4}$	39 $\frac{1}{4}$	Do. .	St. George Littledale, British Museum.
59 $\frac{1}{8}$	19 $\frac{1}{8}$	38 $\frac{1}{4}$	Do.	St. George Littledale.
56 $\frac{1}{2}$	18 $\frac{1}{2}$	33 $\frac{1}{2}$	Do.	Major C. S. Cumberland.
55	18	39	Do.	Prince Demidoff.
54 $\frac{3}{4}$	18 $\frac{3}{4}$	30	Do.	Major C. S. Cumberland.
54 $\frac{1}{2}$	19 $\frac{3}{4}$	33 $\frac{3}{4}$	Do. .	Do.
54 $\frac{1}{2}$	19	35	Do.	Do.
53 $\frac{1}{4}$	19	22	Do. . .	St. George Littledale.
52 $\frac{1}{2}$	19 $\frac{3}{4}$	33	Do.	Prince Demidoff.
52 $\frac{1}{2}$	18 $\frac{1}{2}$	38 $\frac{1}{2}$	Do. .	Do.
52	19	37 $\frac{1}{2}$	Do.	Do.
51 $\frac{1}{2}$	18 $\frac{1}{8}$	26	Do. .	Do.
51 $\frac{1}{4}$	19 $\frac{3}{8}$	31	Do.	Do.
51	19 $\frac{3}{4}$	33	Do.	Do.
51	19 $\frac{1}{4}$	33	Do. .	St. George Littledale.
50 $\frac{1}{2}$	18 $\frac{1}{4}$	37 $\frac{3}{4}$	Do.	Do.
50	19 $\frac{1}{2}$	31 $\frac{1}{2}$	Do.	Major C. S. Cumberland.
50	19 $\frac{1}{4}$	36	Do. .	St. George Littledale.
50	19 $\frac{1}{4}$	27 $\frac{1}{4}$	Do. .	Sir Edmund G. Loder, Bart.
49 $\frac{1}{2}$	20 $\frac{1}{4}$	25	Do.	St. George Littledale.
47 $\frac{3}{4}$	19	31 $\frac{1}{2}$	Siberia	British Museum.
45 $\frac{1}{2}$	20	27 $\frac{1}{4}$	Altai . .	Prince Demidoff.
40	16	33	Do. .	Princess Demidoff.





Head of Tibetan Argali.

**TIBETAN ARGALI (*Ovis ammon hodgsoni*).**

Chiefly distinguished from the true ammon sheep by the development of a distinct white ruff on the throat of the males, at least in the winter coat, and also by the less degree of lateral expansion of the horns, which do not form more than a single complete circle, and are generally broken at the tips. The wrinkles on the horns are perhaps somewhat less prominent, and the outer front angle is frequently well developed.

The height at the shoulder is perhaps rather less than in the true ammon, of which this sheep is best regarded as a local race. A specimen measured by Major Greenway was 76 inches from the nose to the tip of the tail, and the weight about 212 lbs. In another male, whose age was estimated at 10 years, the height at the shoulder was 43 inches, the girth 50 inches, and the weight 205 lbs. (P. H. G. Powell-Cotton).

*Distribution.*—The plateau of Tibet, from Northern Ladak to the districts north of Sikim, and northwards to the Kuenlun; eastern limits unknown.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
57	$18\frac{3}{4}$	29	Ladak . .	Arnold Pike.
$50\frac{1}{2}$	$18\frac{1}{4}$	19	Pangong Lake	Sir Edmund G. Loder, Bart.
-50	17	...	Tibet .	W. H. Lane.
$-48\frac{1}{2}$	19	...	Do. .	E. Howard Brooke.
48	16	23	Rudok .	Major G. A. L. Carew, D.S.O.
48	$18\frac{1}{2}$	20	Ladak . .	Major H. C. Morland.
48	18	31	Do. .	Major Hon. A. Dalzell.
-47	17	...	Do. .	Otho Shaw.
$46\frac{1}{2}$	$19\frac{3}{4}$	20	Do. .	A. O. Hume, C.B.
$-46\frac{1}{2}$	$16\frac{1}{2}$	21	Ladak .	P. H. G. Powell-Cotton.
$46\frac{1}{2}$	$16\frac{3}{4}$	...	Do. .	Capt. H. M. Biddulph.
-46	19	...	?	Major C. S. Cumberland.
46	16	17	?	Hon. R. A. Ward.
$45\frac{1}{2}$	$16\frac{1}{4}$	17	?	Duke of Teck, G.C.B.
45	17	16	Ladak . .	J. V. Phelps.
-45	...	...	?	Lucknow Museum.
$44\frac{5}{8}$	$17\frac{1}{2}$	$22\frac{1}{2}$	Tibet . .	The late B. H. Hodgson.
$-44\frac{1}{2}$	17	$21\frac{7}{8}$	Ladak .	A. E. Leatham.
44	$16\frac{1}{8}$	$19\frac{1}{4}$	Do. .	Major C. S. Cumberland.
44	16	$17\frac{1}{2}$	Do. .	W. R. Lawrence.
-44	18	...	Do. .	Maharaja of Travancore, G.C.S.I.
-43	...	...	Do. .	Capt. W. Bailey.
$42\frac{1}{2}$	$16\frac{1}{2}$	19	?	A. O. Hume, C.B.
$42\frac{1}{2}$	17	...	?	Lieut.-Col. T. Greenaway.
$-42\frac{1}{2}$	16	15	Ladak .	Capt. H. M. Biddulph.
$42\frac{1}{2}$	16	18	Do. .	Hume Collection, Brit. Museum.
$42\frac{1}{2}$	$15\frac{1}{4}$	...	?	J. Carr Saunders.
$42\frac{3}{8}$	$16\frac{1}{4}$	20	Tibet . .	H.R.H. the Duke of Saxe-Coburg and Gotha.

**TIBETAN ARGALI (*Ovis ammon hodgsoni*)—continued.**

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
42 $\frac{1}{8}$	16 $\frac{3}{4}$	14 $\frac{1}{4}$	Ladak . . .	Hume Collection, British Museum.
42	15 $\frac{1}{8}$	17	Near Hanle . .	Capt. F. E. S. Adair.
42	...	...	Rudok . . .	Major G. A. L. Carew, D.S.O.
41 $\frac{7}{8}$	16	...	Tibet . . .	Hon. Walter Rothschild.
41 $\frac{1}{2}$	16	15	?	Duke of Westminster.
-41 $\frac{1}{2}$	...	...	Ladak . . .	G. G. Thatcher.
41 $\frac{1}{8}$	16 $\frac{3}{4}$	19	Do. . .	Sir Victor Brooke's Collection.
-41	...	18 $\frac{1}{2}$	Do. . .	Major A. E. Ward.
41	17 $\frac{1}{4}$	...	Do. . .	E. L. Phelps.
41	16 $\frac{1}{2}$	17	Do. . .	R. Johnstone.
40 $\frac{1}{2}$	14 $\frac{1}{2}$	26 $\frac{1}{4}$	?	St. George Littledale, Brit. Museum.
40 $\frac{3}{8}$	17 $\frac{3}{8}$	20 $\frac{3}{8}$	Ladak . . .	Hon. Charles Ellis.
40 $\frac{1}{4}$	16 $\frac{1}{2}$	19	Do. . .	Col. R. J. Heber-Percy.
40 $\frac{1}{4}$	15 $\frac{3}{4}$	18 $\frac{3}{4}$	Do. . .	A. C. Bailey.
-40	17	...	Do. . .	Major-General Alexander A. A. Kinloch.
-40	...	...	?	Capt. H. Trevor.
40	17	19 $\frac{1}{2}$	Ladak . . .	Sir Edmund G. Loder, Bart.
-40	17	...	?	Indian Museum.
-40	...	...	Ladak . . .	Otho Shaw.
-40	17 $\frac{1}{2}$	...	Hanle . . .	Capt. H. W. Codrington.
39 $\frac{1}{2}$	17	14	Ladak . . .	F. W. H. Walshe.
39 $\frac{1}{4}$	17	14 $\frac{3}{4}$	Do. . .	Hon. Charles Ellis.
39 $\frac{1}{4}$	17 $\frac{1}{2}$	21 $\frac{1}{2}$	Do. . .	Dr. W. P. Y. Bainbrigge.
39	17	19	Do. . .	Sir Robert Harvey, Bart.
♀ 18 $\frac{1}{2}$	8 $\frac{1}{2}$	23	Do. . .	David T. Hanbury.
♀ 18	7	19 $\frac{3}{4}$	Tibet . . .	The late B. H. Hodgson, British Museum.
♀ 14 $\frac{1}{2}$	7 $\frac{1}{2}$	17 $\frac{1}{2}$	Ladak . . .	Sir Victor Brooke's Collection.

**MONGOLIAN ARGALI (*Ovis ammon jubata*).**

Nearly allied to the Tibetan race, having a distinct yellowish-white throat ruff and generally similar horns, but, in some cases at least, the outer front angles of the latter much rounded off. The white on the buttocks and hinder surface more abundant and purer in colour.

*Distribution.*—Eastern Mongolia to the north of Peking.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
44 $\frac{3}{4}$	16 $\frac{1}{2}$	23	Manchuria . . .	Henri de Bourbon, Comte de Bardi.



Head of Male Shapu.

**SHAPU or URIAL (*Ovis vignei*).**

A much smaller sheep than either of the Asiatic argalis, with comparatively slender and well-wrinkled horns of considerable length, which when fully developed curve forwards along the sides of the face; the males with a more or less strongly developed white ruff on the throat. General colour varying from rufous brown to gray in summer, with the chest, under parts, and portions of the legs white, and sometimes blackish "points." Females with small horns. Height at shoulder about 32 inches; weight about 120 lbs.

*Distribution*.—From Ladak and Zanskar to Russian Turkestan, Afghanistan, Baluchistan, Southern Persia, the North-West Frontier of India, and the Punjab Salt-Range. Two local races, which probably intergrade in the Indus valley, may be recognised. First, the typical urial of Astor, the sha or shapu of Ladak (*O. vignei typica*); and secondly, the smaller Punjab urial (*O. vignei*), in which the colour is redder, the ruff more developed, and the front angles of the horns often show a knotted keel. There is also *O. vignei blanfordi* of Baluchistan; and it is possible the Persian form, in which the ruff is said to be but little developed, may form a fourth.

(a) SHAPU (*Ovis vignei typica*).

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
39	11 $\frac{3}{4}$	15 $\frac{1}{2}$	?	Major Sir H. S. Rawlinson, Bart.
38 $\frac{5}{8}$	12 $\frac{1}{4}$	11 $\frac{1}{4}$	?	J. Carr Saunders.
38 $\frac{1}{2}$	11 $\frac{1}{4}$	8 $\frac{1}{2}$	Near Leh . . .	E. L. Phelps.
36 $\frac{1}{4}$	11 $\frac{1}{2}$	4 $\frac{1}{2}$	Near Ley . . .	A. O. Hume, C.B.
-36 $\frac{1}{4}$	11 $\frac{3}{4}$	...	Near Leh . . .	Major A. E. Ward.
-36 $\frac{1}{4}$	10 $\frac{7}{8}$	10 $\frac{1}{4}$	Baltistan	Capt. T. A. Salt.
34 $\frac{3}{8}$	11	...	?	East India Club.
-33 $\frac{3}{4}$	12 $\frac{1}{4}$	13	Ladak . . .	P. H. G. Powell-Cotton.
33 $\frac{1}{4}$	12	12	Do. . .	Arnold Pike.
-33 $\frac{1}{8}$	11 $\frac{1}{2}$	10 $\frac{5}{8}$	Do. . .	Sir Edmund G. Loder, Bart.
33	10 $\frac{1}{2}$	15	Do.	F. W. H. Walshe.
32 $\frac{1}{4}$	10 $\frac{1}{2}$	11 $\frac{3}{4}$	?	Sir Victor Brooke's Collection.
-32	11	9 $\frac{3}{4}$	Ladak . . .	Col. J. Biddulph.
31 $\frac{3}{4}$	10 $\frac{1}{4}$	7	Do.	Col. F. C. Lister-Kay.
-31	11	...	Do. . .	J. D. Cobbold.
30 $\frac{1}{2}$	8 $\frac{1}{2}$	19	Do. . . .	K. Dingwall.
30	11 $\frac{3}{4}$	16	?	Hon. Walter Rothschild.
-30	...	...	Ladak	Otho Shaw.
-30	11	...	?	Maharaja of Travancore, G.C.S.I.
-30	...	...	?	Lucknow Museum.
29 $\frac{7}{8}$	10 $\frac{3}{8}$	...	?	H. C. V. Hunter.
29 $\frac{1}{2}$	10 $\frac{1}{2}$	13	Ladak . . .	J. V. Phelps.
29 $\frac{1}{2}$	10 $\frac{1}{4}$	15 $\frac{1}{2}$	Tochi Valley . . .	J. Johnston-Stewart.
29	11 $\frac{1}{8}$	...	?	Sir Robert Harvey, Bart.
29	11	9 $\frac{3}{4}$	Ladak, W. bank of the Indus . . .	A. Leslie Renton.
-28	...	...	Gilgit . . .	Otho Shaw.
28	10 $\frac{3}{4}$	13	?	B. Vincent.
27 $\frac{1}{2}$	11 $\frac{1}{8}$	18 $\frac{1}{4}$	?	Martyn Kennard.
-27 $\frac{1}{2}$	10	...	West Ladak . . .	Capt. F. E. S. Adair.

(a) SHAPU (*Ovis vignei typica*)—continued.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
-27½	...	...	Skardo	Major George Douglas.
-27½	11¼	19	Astor	Capt. H. W. Codrington, Officers' Mess Queen's Own Corps of Guides.
-27½	10½	15	Do.	Capt. F. E. S. Adair.
-26¾	10¾	...	Shigar	E. L. Phelps.
26½	10½	13	Ladak	St. George Littledale.
26½	9¾	19½	?	W. J. M'Lachlan.
25½	11¼	15½	?	Hon. Charles Ellis.

(b) URIAL (*Ovis vignei cycloceros*).

Strictly speaking, *cycloceros* has no right to stand for this race, as it was given to the typical form, but at present it seems inadvisable to change it.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
39½	10¾	18½	Punjab . . .	Major F. H. Taylor. (See illustration.)
-38½	...	...	Jouaka Land .	Royal Artillery Mess at Attock.
37	9	...	?	Major J. C. Shirres, D.S.O.
38¾	9.75	9.5	Chita Oapar Range, near Attock	Royal Artillery Mess, Woolwich, Major C. F. Massey.
36¾	9	9	Hills north-west of Peshawar	Mess of 60th Rifles, Lord Walter Fitzgerald.
35½	10½	16	Gulran, Afghanistan .	Dr. J. Aitchison, British Museum.
-35½	10¼	20¾	?	Mess, 21st Punjab Infantry.
35¼	10½	9½	Punjab . . .	Major F. H. Taylor.
-35	11	14	Near Cabul . .	Major J. W. M. Cotton.
34½	8½	16	Sind . . .	L. Napier.
33½	9½	12½	Salt-Range .	A. O. Hume, C.B.
33½	9½	8¾	?	Capt. R. L. Tottenham.
32½	10	11½	?	Sir Victor Brooke's Collection.
32¾	7¾	12	Punjab . . .	G. Blois Johnson.
32¼	10	11½	?	Hume Collection, British Museum.
31½	9½	16¾	Salt-Range .	Capt. H. W. Codrington.
-31	10¼	...	Punjab . . .	Major-General Alexander A. A. Kinloch.

(b) URIAL (*Ovis vignei cycloceros*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
31	9 $\frac{3}{8}$	14 $\frac{1}{2}$	Punjab . . .	Major R. H. Rattray.
30 $\frac{7}{8}$	9 $\frac{7}{8}$	20 $\frac{1}{8}$	Salt-Range . . .	Sir Victor Brooke's Collection.
30 $\frac{3}{4}$	11 $\frac{1}{4}$	11 $\frac{1}{4}$	Do. . . . .	Col. J. Biddulph.
30	8 $\frac{1}{2}$	6 $\frac{1}{2}$	? . . . .	Dublin Museum.



Head of Male Urial. Major F. H. Taylor's specimen.

29 $\frac{7}{8}$	10 $\frac{3}{4}$	.	Salt-Range . . .	H. C. V. Hunter.
29 $\frac{3}{4}$	10 $\frac{1}{2}$	16 $\frac{1}{2}$	Sind Hills . . .	Major C. S. Cumberland.
29 $\frac{1}{2}$	9	...	Sheik Budin, near Dera Ismail Khan	Capt. Harry V. Brooke.
28 $\frac{1}{4}$	9	15 $\frac{1}{2}$	Kusan, Afghanistan . .	Dr. J. Aitchison, British Museum.
27 $\frac{1}{2}$	...	...	Afghan Hills . . .	Col. J. Biddulph.
26 $\frac{1}{2}$	9 $\frac{1}{2}$	12	Salt-Range . . .	Capt. B. L. Carew.
-26	...	...	Sind . . . . .	J. D. Inverarity.
26	..	...	Salt-Range . . .	Major-General Alexander A. A. Kinloch.
-25 $\frac{7}{8}$	8 $\frac{1}{8}$	14 $\frac{1}{2}$	Punjab . . . . .	Dr. Percy Rendall.
25 $\frac{3}{8}$	9 $\frac{3}{4}$	13 $\frac{3}{4}$	Salt-Range . . .	Sir Edmund G. Loder, Bart.

(b) **URIAL (*Ovis vignei cycloceros*)**—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
25 $\frac{1}{8}$	9 $\frac{5}{8}$	17 $\frac{1}{2}$	Kohrod, Persia .	Sir Victor Brooke's Collection.
-24	8 $\frac{1}{2}$	13	Salt-Range .	Col. J. Biddulph.
21 $\frac{1}{2}$	9 $\frac{3}{4}$	15	?	Lieut.-Col. H. Wade-Dalton.

(c) **KELAT RACE (*Ovis vignei blanfordi*)**.

Possibly inseparable from the last, in which case the name *blanfordi* should supersede *cycloceros*, which was really given to specimens of *typica*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
37 $\frac{1}{2}$	10 $\frac{1}{4}$	11	Haji Khan, Kelat, 3000 ft.	A. O. Hume, C.B.
36	9 $\frac{1}{4}$	17	Kelat .	Do.
31 $\frac{3}{8}$	9 $\frac{3}{8}$	13 $\frac{3}{4}$	Do. .	Hume Collection, Brit. Museum.
28 $\frac{1}{2}$	9	10	Baluchistan .	Col. J. Biddulph.
-25 $\frac{1}{2}$	9 $\frac{1}{4}$	10 $\frac{3}{4}$	Do. .	Lieut.-Col. L. L. Fenton.

**ARMENIAN MUFLON (*Ovis orientalis*)**.

This sheep differs from all the preceding species by the absence of horns in the females; the horns of the males being not unlike those of the urial, but curving backwards, so that their points are situated behind the neck instead of beneath the eyes. General colour of upper parts some shade of yellow or foxy red; the under parts and lower portions of the legs white. Height at shoulder about 2 feet 9 inches.

*Distribution*.—The mountains of Armenia, Eastern Persia, and Asia Minor.

Length on outside curve.	Circumference.	Tip to Tip.	Locality.	Owner.
40 $\frac{1}{4}$	10 $\frac{1}{2}$	5 $\frac{1}{2}$	?	W. Burchart Barker, British Museum.
36 $\frac{1}{4}$	10 $\frac{3}{8}$	5 $\frac{3}{4}$	?	British Museum.
36	10 $\frac{1}{4}$	15	Persia	Hon. Walter Rothschild.
30 $\frac{1}{2}$	10 $\frac{5}{8}$	18	?	Sir Victor Brooke's Collection.
-26 $\frac{1}{10}$	8 $\frac{1}{2}$	12 $\frac{1}{8}$	Cilician Taurus . .	C. G. Danford.
<sup>1</sup> 24 $\frac{1}{2}$	9 $\frac{1}{4}$	11 $\frac{1}{2}$	Persian Frontier . .	Prince Demidoff.
24	9 $\frac{5}{8}$	17	Asia Minor . .	Col. J. Biddulph.
<sup>1</sup> 23 $\frac{3}{4}$	9 $\frac{1}{2}$	13 $\frac{1}{2}$	Persian Frontier	Prince Demidoff.
23 $\frac{3}{4}$	9 $\frac{1}{2}$	11 $\frac{3}{4}$	Persia . .	Major C. S. Cumberland.

<sup>1</sup> Determination provisional.





Head of Male Cyprian Muflon. (From Biddulph, *Proc. Zool. Soc.* 1884.)

### CYPRIAN MUFLON (*Ovis orientalis ophion*).

A small local race of the preceding distinguished by certain differences in coloration, and the complete rounding-off of the front outer angle of the horns of the male. This is the smallest of the wild sheep, and comparatively a rare trophy. Height at shoulder about 28 inches. The horns closely resemble those of the Armenian race in general characters, but are less massive, and curve gradually from the base, instead of diverging nearly straight outwards, as is generally the case in the latter. The type specimen of the species is preserved in the Berlin Museum.

*Distribution.*—The Tröodos Mountains of Cyprus.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
25	8	15 $\frac{3}{4}$ (weight 5 stone)	Tröodos Mountains	H. Williamson.
24	8	4 $\frac{3}{8}$	Do.	The late Lord Lilford.
23 $\frac{1}{2}$	8.15	12.20	Do.	Col. J. Biddulph.
23	7	5 $\frac{3}{4}$	Do.	British Museum.
22 $\frac{7}{8}$	7 $\frac{1}{4}$	6	Do.	Gen. Sir R. Biddulph, British Museum.
22 $\frac{1}{4}$	8	12 $\frac{3}{4}$	Do.	Sir Victor Brooke's Collection.
17 $\frac{1}{2}$	8	1 $\frac{1}{2}$	Do.	Dublin Museum.
16	7 $\frac{1}{4}$	16 $\frac{1}{2}$ (weight 4 stone)	Do.	Hon. Walter Rothschild.



Head of Male European Muflon.

From a specimen in the British Museum, shot by Ford G. Barclay.

### EUROPEAN MUFLON (*Ovis musimon*).

The large light-coloured saddle on the otherwise dark summer coat of the rams of this handsome and well-known little sheep is so distinctive of the species that nothing in the way of description need be attempted in this place. It may be observed, however, that the ewes are generally hornless, and that the horns of the rams curve forwards so as to have their tips below the eyes, and are comparatively massive, with the wrinkles of a type somewhat different from that obtaining in the Armenian sheep. Height at shoulder about 27 inches.

A good account of muflon-shooting will be found in Mr. E. N. Buxton's *Short Stalks* (first series).

*Distribution.*—At the present day the islands of Sardinia and Corsica.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
34½	8¾	16¾	Sardinia . . . .	W. Moncreiffe.
30½	8⅞	11	Do. . . . .	C. Sloane Stanley.
30½	8⅝	14	Do. . . . .	Rhys Williams.

EUROPEAN MUFLON (*Ovis musimon*)—*continued*.

Length on front curve.	Circumference.	Tip to Tip.	Locality.	Owner.
29 $\frac{3}{4}$	8 $\frac{5}{8}$	8 $\frac{3}{8}$	Sardinia . . .	Rhys Williams.
29 $\frac{3}{4}$	8	12 $\frac{1}{2}$	Do. . .	C. Sloane Stanley.
29 $\frac{3}{4}$	8	...	Do. . .	J. D. Cobbold.
29 $\frac{5}{8}$	8 $\frac{3}{4}$	11	Do. . .	Hon. R. A. Ward.
29	8 $\frac{3}{4}$	11	Do. . .	W. Moncreiffe.
28 $\frac{7}{8}$	8 $\frac{1}{8}$	21	Do. . .	E. N. Buxton.
28 $\frac{3}{4}$	9	10	Do. . .	Ford G. Barclay.
28 $\frac{1}{2}$	9 $\frac{5}{8}$	9 $\frac{3}{8}$	Do. . .	Edinburgh Museum.
27 $\frac{7}{8}$	8 $\frac{3}{4}$	5 $\frac{1}{4}$	Do. . .	W. E. Pease.
27	9 $\frac{1}{2}$	10 $\frac{1}{2}$	Do. . .	Sir Edmund G. Loder, Bart.
27	8 $\frac{1}{2}$	10	Do. . .	British Museum.
27	8 $\frac{3}{4}$	11 $\frac{1}{2}$	Do. . .	Rhys Williams.
-26 $\frac{5}{8}$	8 $\frac{1}{2}$	9	Do. . .	H. Brinsley Brooke.
-26	10 $\frac{3}{8}$	10 $\frac{1}{2}$	Corsica . . .	Capt. John Marriott.
25 $\frac{1}{2}$	8 $\frac{3}{4}$	6	Sardinia . . .	A. Y. Lethbridge.
25	8 $\frac{1}{4}$	10	Do. . .	Hon. Walter Rothschild.
24 $\frac{1}{2}$	9 $\frac{1}{8}$	9 $\frac{7}{8}$	South-West Sardinia . .	Sir Victor Brooke's Collection.

DOMESTIC SHEEP (*Ovis aries*).

The history and ancestry of the various breeds of domestic sheep are lost in the mists of antiquity, and naturalists are totally unable to point to the wild stock from which any or all of them are derived. This is the more to be regretted, seeing that the Swedish breed is the type of the genus *Ovis*. Most domesticated breeds differ from wild sheep by the woolly nature of their coat ; but since hairy tame sheep are met with in several uncivilised countries, this point of difference is of comparatively little importance. More weight has been attached to the great length of the tail, which is much longer than even that of the arui ; and, as mentioned above, that species is almost certainly not the father of the domesticated sheep. There is, however, some degree of probability that the long tails of the domestic breeds are due to a kind of degeneration. And if this be really the case, their ancestry

might be looked for among the muflons or urial or some allied extinct form, since the horns of most breeds approximate to the muflon type. The presence of horns in the females of many breeds, Dorsetshire, for example, may be either an inherited character, or a redundancy of a nature similar to that which has produced four, or even five, horns in the males of certain oriental breeds. Some eastern sheep, like the Wallachian, have further departed from the muflon type by the development of upright corkscrew horns comparable with those of the markhor or kudu.

Length on outside curve.	Circumference.	Tip to Tip.	Locality.	Owner.
39½	8¾	21	?	H. E. Surtees.
37	8¼	20	Loch Awe, N.B.	H. Murray.
35½	8	16½	?	Sir Victor Brooke's Collection.
33	11	22½	Yarkand	Hume Collection, Brit. Museum.
32	8½	27¾	Do.	Do.
28¾	8	21½	Scotland	Rowland Ward.
22½	9½	20½	Yarkand	Hume Collection, Brit. Museum.
22¾	9½	22½	Do.	Do.
18	8¾	16½	Fezzan	British Museum.

#### Abnormally-horned Specimens.

Length on outside curve.	Circumference.	Tip to Tip.	Number of Horns.	Owner.
20½ + 16	6 + 4¾	15½	Four	Sir H. B. Meux, Bart.
19¾ + 14	6½ + 4½	21 + 16	Do.	P. C. Millbank.
17½ + 14½	7½ + 4¾	4½ + 6¾	Do.	Hume Collection, British Museum.
17 + 11¾	6¾ + 5	6 + 8½	Do.	British Museum.
13½ + 10½	5¾ + 4½	...	Five	Hume Collection, British Museum.
13 + 9¾	7½ + 5	14¾	Four	A. O. Hume, C.B.
12 + 9¾	6½ + 4	17½	Do.	Do.

The following specimens belong to the Wallachian breed :—

Length on the curve.	Length in a straight line	Girth.	Tip to Tip.	Owner.
33	17½	7½	19½	H.R.H. le Duc d'Orléans.
32	24	7½	38	Do.



Head of Bull Musk-Ox.

**MUSK - OX (*Ovibos moschatus*).**

In spite of its name, this Arctic ruminant has no near affinity with the members of the ox tribe, the molar teeth being more like those of the sheep and goats, the muzzle, except for a small strip between the nostrils, hairy, and the tail reduced to a mere stump concealed among the long hair of the hind-quarters. On the other hand, the resemblance to the sheep is not very close, the horns, which in old males nearly meet in the middle line of the forehead, being of a totally different form and structure, and the skull likewise very distinct. In the males the horns are much flattened and expanded at the bases, after which they are bent suddenly down behind the eyes, to curve upwards again at the tips. In the females they are much smaller, less expanded, and not approximated at their bases. In both sexes their texture is coarse and fibrous, and their colour yellow. The long coat of dark brown hair depending from the back and sides like a mantle affords an adequate protection against the rigors of an Arctic winter; and the broad spreading hoofs, with hair on their under surface, give a firm

foothold on snow and ice. Height at shoulder about 4 feet; weight about 8 to 9 cwt.

*Distribution*.—Arctic America, approximately north and east of a line drawn from the mouth of the Mackenzie River to Fort Churchill on Hudson Bay, Greenland, and Grinnell-land, in lat.  $32^{\circ} 27'$ ; approximate southern limit lat.  $40^{\circ}$  N.

Length on outside curve.	Breadth of Palm.	Tip to Tip.	Locality.	Owner.
$-29\frac{3}{4}$	13	...	?	W. W. Hart.
$27\frac{3}{4}$	10	$27\frac{1}{2}$	Barren Grounds of Northern Canada	David T. Hanbury.
$27\frac{1}{2}$	$12\frac{1}{2}$	27	Do.	Earl of Lonsdale.
27	$9\frac{1}{2}$	$25\frac{1}{2}$	Do.	David T. Hanbury.
$26\frac{7}{8}$	11	27	Do.	Warburton Pike.
$26\frac{3}{4}$	$12\frac{3}{8}$	...	North America	J. Rae, British Museum.
$26\frac{1}{4}$	$13\frac{1}{8}$	$27\frac{5}{8}$	Do.	British Museum.
$24\frac{3}{4}$	11	$25\frac{1}{2}$	Barren Grounds of Northern Canada	Warburton Pike.
$24\frac{1}{4}$	$7\frac{1}{2}$	19	Do.	J. Talbot Clifton.
$24\frac{1}{2}$	$10\frac{1}{2}$	26	Do.	Hon. Walter Rothschild.
24	20 (circum- ference)	30	North America	Earl of Lonsdale.
24	$9\frac{3}{4}$	$23\frac{1}{8}$	Do.	Sir Edmund G. Loder, Bart.
$22\frac{3}{4}$	$9\frac{1}{2}$	$19\frac{1}{4}$	Grinnell-land	Col. W. H. Fielden, British Museum.
$-21\frac{1}{2}$	9	27	?	Dublin Museum.
♀ 18 $\frac{5}{8}$	$4\frac{1}{2}$	...	North America	A. G. Dallas, British Museum.
♀ 18 $\frac{1}{4}$	$4\frac{1}{8}$	...	Do.	Do.



Horns of Cape Buffalo (F. H. Barber's specimen).

### CAPE BUFFALO (*Bos caffer*).

*Inyati* of the Swazis and Zulus.  
*Mbogo* and *Nyati* of the Swahilis.  
*Nari* of the Basutos.

*Nadi* in the Barotse and Lake  
 N'gami countries.  
*Mboa* and *Nyati* in the Chilala and  
 Chibisa countries.

Among the distinctive features of this splendid bovine may be noted the enormous helmet-like mass formed by the closely approximated bases of the horns in old bulls, the backward inclination and comparatively slight angulation of the horns themselves, the shortness of the face, and the great width and size of the heavily fringed and flapping ears. In colour both the skin and the sparse hairs with which it is clothed are for the most part jetty black; the hairs themselves being directed uniformly backwards from the nape to the rump. Height at shoulder about five feet.

*Distribution*.—Southern Africa from the Cape to the southern bank of the Congo on the west side, and approximately to the neighbourhood of the Victoria Nyanza on the east side of the continent. Northwards of this it not improbably gradually passes into the Abyssinian buffalo. Except on the Zambesi, Chobe, and some neighbouring rivers, buffaloes have now become very scarce in South Africa. But between Umtali and the east coast at Beira, and also from the latter station to the mouth of the Zambesi, they are to be met with in vast herds; and a few years ago existed in countless numbers. Here they are much protected by the unhealthy nature of the country, which is deadly to Europeans, except between the end of May and November. Save for a few protected

herds in the Addo bush, the Knysna and Zitzikamma forests, and thickets of the Fish and Sunday rivers, the species has long since been exterminated in the Cape. It is even rare and local in British East Africa, where, as in other districts on the eastern side of the continent, the rinderpest has of late years played sad havoc with the herds.

Greatest Width.		Tip to Tip.	Width of Palm measured on face of horn.	Locality.	Owner.
Outside.	Inside.				
-49½	43¾	30¾	12	Sabi River . .	F. H. Barber. (See illustration.)
49	44½	40½	11¼	Limpopo . .	Sir Richard Glyn, Bart.
-48⅞	44½	36	10	Chiromo, B.C.A.	H. C. Macdonald.
47	41	28½	12	Limpopo . .	The late W. F. Webb.
47	40⅞	...	12¼	East Africa . .	F. J. Jackson, C.B.
...	40½	26	...	Do.	Prince Boris Czetwertynski.
46½	44¼	37½	6½	Pungwe . .	C. M. Swire.
45¾	41¼	37½	...	South Africa . .	British Museum.
45¾	40	28¾	12	Nyasaland . .	F. Vaughan Kirby.
45½	41	30	...	East Africa . .	W. Astor Chanler.
45½	...	...	11½	Kilimanjaro . .	H. C. V. Hunter.
-45	39¾	36½	14	East Africa . .	Count Scheibler.
-45	...	...	...	Nyasaland . .	S. Pulley.
44¾	39⅞	27½	11¼	East Africa . .	Sir Robert Harvey, Bart.
44½	39¼	29	12	Pungwe . .	F. S. Staples.
44½	39¼	29	14	Near River Ramokwebani, S. Africa	F. C. Selous.
44½	...	37½	12	East Africa . .	F. Charrington.
44	40¼	37¾	12	Do. . .	Capt. R. A. J. Montgomerie, C.B., R.N.
-44	40	...	11½	South Africa	J. Lamont.
-44	37½	14	...	Chiringoma, P.E.A.	F. Vaughan Kirby.
43⅞	37¾	26½	12¾	East Africa . .	Hon. Walter Rothschild.
43½	38½	25½	9	Pungwe . .	H. R. Holden.
43¼	38¼	24½	13¼	South Africa . .	Sir John Willoughby, Bart.
43	37⅞	29¾	14	Do. . .	C. D. Rudd.
42¾	38	33¾	9¾	East Africa	E. J. L. Berkeley.

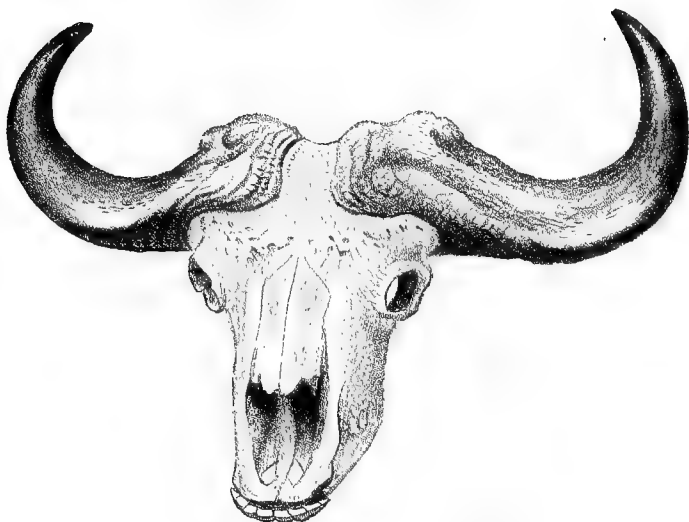


CAPE BUFFALO (*Bos caffer*)—*continued.*

Greatest Width.		Tip to Tip.	Width of Palm measured on face of horn.	Locality.	Owner.
Outside.	Inside.				
-42½	...	...	13	Manicaland	F. Lean.
-42½	36½	29	14½	E. C. Africa . .	James J. Harrison.
42⅘	36¾	29½	12½	?	Sir Victor Brooke's Collection.
42	38	35¼	9	East Africa . .	Lord Delamere.
42	37⅘	26½	11	Pungwe	Capt. F. H. Lehmann.
42	37	30¼	10¼	Barotseland	E. D. Scott.
-42	36	19	16	?	Mr. Justice Hopley.
41½	37¾	34½	10	Pungwe .	R. H. Venables-Kyrke.
41½	36⅘	28	...	South Africa . .	British Museum.
-41½	39	39	14¼	South-east Africa .	James J. Harrison.
41	38	35	8½	East Africa . .	Lord Delamere.
41	36¾	37	11	Zambesia .	Comdr. A. T. Hunt.
41	36	30	11½	?	Rowland Ward.
41	35⅘	28¾	...	Mashonaland	F. C. Selous, British Museum.
41	36½	26½	9½	Pungwe . . .	Capt. Lord Douglas Compton.
-40⅘	35	19⅘	13½	Do. .	Count E. Hoyos.
40½	36¾	25½	9½	Do.	Marquis of Hamilton.
-40½	36	35	15	South Africa	A. Ohlsson.
-40¼	36	20⅘	12	Lower Shiré .	Staff-Surgeon J. Dowson, R.N.
-...	36	21	...	East Africa .	Sir John Willoughby, Bart.
40	37	35	...	Do. .	Gen. Sir Lloyd William Mathews.
40	35¾	...	14⅘	Do.	F. J. Jackson.
♀ 40	34⅘	21	8½	Pungwe . .	J. W. Allen.
40	35	21¼	10	Matabeleland .	Major James Grant.
40	34¾	21¾	8	Pungwe . .	C. C. Gouldsmith.
39¾	34½	9½	14	Do.	G. L. Bonham.
39¼	35	34½	9	Do. .	R. Hughes.
39.12	37	36.11	12	British East Africa .	Prince Henry of Liechtenstein.
39	36	35¼	12	Zululand	A. J. Brandon.

CAPE BUFFALO (*Bos caffer*)—*continued*.

Greatest Width.		Tip to Tip.	Width of Palm measured on face of horn.	Locality.	Owner.
Outside.	Inside.				
39	34 $\frac{1}{2}$	22 $\frac{1}{2}$	10	Mashonaland . .	A. Neilson.
39	34 $\frac{1}{4}$	27	11 $\frac{1}{2}$	Benguela . .	G. W. Penrice.
39	34	19	10 $\frac{1}{2}$	Shiré Valley . .	H. H. Williams.
38 $\frac{1}{2}$	33 $\frac{3}{4}$	27	9 $\frac{1}{2}$	Pungwe . .	R. K. Micklethwait.
38 $\frac{1}{4}$	32 $\frac{1}{2}$	19 $\frac{3}{4}$	13	?	Sir Edmund G. Loder, Bart.
38 $\frac{1}{4}$	33 $\frac{1}{2}$	23 $\frac{1}{4}$	9 $\frac{1}{2}$	Shiré Valley . .	C. C. Bowring.
38	33 $\frac{1}{4}$	26 $\frac{1}{2}$	8	Pungwe . .	A. Cameron.
38	33 $\frac{1}{2}$	31 $\frac{1}{2}$	14 $\frac{3}{4}$	?	Julius Jeppe.
38	32 $\frac{1}{2}$	20 $\frac{3}{4}$	11	?	Do.
38	34 $\frac{1}{4}$	31 $\frac{1}{2}$	10 $\frac{1}{2}$	?	F. Watkins.
37 $\frac{1}{2}$	33 $\frac{3}{4}$	30	10	British Central Africa	J. E. Gough.
-37 $\frac{1}{2}$	31 $\frac{3}{4}$	25	11 $\frac{3}{4}$	Shiré Valley . .	Alex. R. Alston.
37 $\frac{1}{4}$	33 $\frac{1}{2}$	32 $\frac{3}{4}$	12 $\frac{1}{2}$	East Africa	Sir John Kirk, K.C.B.
37 $\frac{1}{8}$	31 $\frac{7}{8}$	23 $\frac{5}{8}$	13	?	H.R.H. the Duke of Saxe-Coburg and Gotha.
37	32	16 $\frac{1}{2}$	9 $\frac{1}{2}$ (about)	Pungwe . .	Viscount Ennismore.
37	33	30 $\frac{1}{2}$	10 $\frac{1}{2}$	Goronzia Plain, P.E.A.	Earl of Dunmore.
37	31 $\frac{1}{2}$	21	11 $\frac{1}{2}$	?	L. Rawstorne.
37	30 $\frac{1}{2}$	19	10	South Africa .	R. A. Cooper.
♀ 36 $\frac{1}{2}$	33	26 $\frac{1}{2}$	5 $\frac{1}{2}$	Mozambique	F. Vaughan Kirby.



Skull and Horns of Abyssinian Buffalo.

**ABYSSINIAN BUFFALO (*Bos caffer æquinoctialis*).**

A smaller animal than the last (height at shoulder about 4 feet), with the general colour blackish or tawny brown, tinged locally with rufous, and tending to grayish on the legs. Horns smaller, much more flattened at the bases, where they are more widely separated, and in some, although not all, cases retreating less markedly behind the plane of the eyes. The fact that in East African specimens of the Cape buffalo the horns are usually less rugged than in more southern examples, tends to confirm the view that the present animal should be regarded as a variety rather than as a species.

*Distribution*.—From Abyssinia and southern Somaliland through the Egyptian Sudan for a considerable distance up the White Nile; but the southern limits, if definable, not yet determined.

Greatest Outside.	Width. Inside.	Tip to Tip.	Width of Palm.	Locality.	Owner.
40	37	32	11 $\frac{1}{2}$	Abyssinia . . .	E. Lort-Phillips.
-37 $\frac{7}{8}$	34 $\frac{3}{4}$	34 $\frac{1}{2}$	8 $\frac{3}{4}$	Upper Basaland . .	J. Menges.
36	29	24	...	Mount Elgon, East Africa	E. Gedge.
32	28	22	6 $\frac{3}{4}$	Basé Country . . .	The late F. L. James.
31 $\frac{1}{2}$	28 $\frac{1}{2}$	25 $\frac{3}{4}$	8 $\frac{1}{2}$	Settite River . . .	Col. Ralph Vivian.
31 $\frac{1}{2}$	26 $\frac{1}{2}$	21 $\frac{1}{2}$	9 $\frac{1}{2}$	Bogosland . . .	G. P. V. Aylmer and W. D. James.
31 $\frac{1}{2}$	26 $\frac{1}{2}$	24 $\frac{3}{4}$	...	Do. . . .	British Museum.
31	28 $\frac{1}{2}$	21 $\frac{3}{4}$	11	Abyssinia . . .	Sir Edmund G. Loder, Bart.
-30 $\frac{1}{2}$	26 $\frac{3}{4}$	20 $\frac{1}{2}$	10 $\frac{1}{4}$	Settite River . . .	Count T. Palfy.
30 $\frac{1}{2}$	23	20 $\frac{1}{2}$	8 $\frac{1}{2}$	Sudan . . .	Lieut.-Col. Hon. W. Coke.
-23 $\frac{1}{2}$	20 $\frac{1}{2}$	16 $\frac{1}{2}$	5 $\frac{1}{2}$	Lower Basaland . .	J. Menges.



Horns of old Male Senegambian Buffalo, from the type specimen in the British Museum.

#### SMALLER AFRICAN BUFFALOES.

Lake Tchad Buffalo (*Bos caffer brachyceros*).

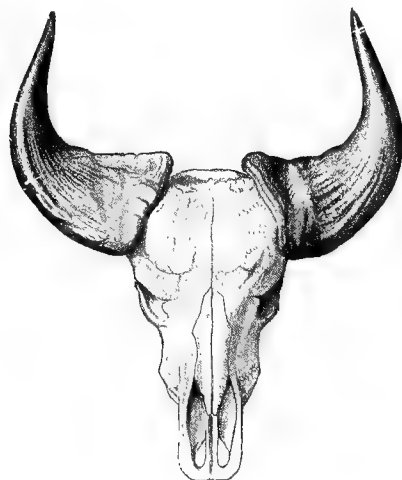
Senegambian Buffalo (*Bos caffer planiceros*).

Dwarf Congo Buffalo (*Bos caffer nanus*).

Despite the enormous differences, alike in size, colour, and the form of the horns, between the little red buffalo of the Congo and its gigantic black cousin of the Cape, such a gradual and apparently complete transition can be traced from the one type to the other, that both seem local modifications of one very variable animal. In the dwarf buffalo of the Congo the colour of the hair is red or yellow, the ears are fringed with very long hair, and the horns are much flattened at the base, with long smooth tips directed upwards. This type may be traced, with some modifications, to the Gaboon and Gambia; but in the interior of Senegambia it apparently passes into the larger brown buffalo, with more laterally expanded and recurved horns, known as *B. caffer planiceros*. And this latter is, in its turn, very close to the Abyssinian buffalo (*B. caffer æquinoctialis*) of East Central Africa, which is nearly allied to the typical Cape form. Another type is indicated by the Lake Tchad buffalo (*B. caffer brachyceros*), first discovered by Denham and Clapperton. In height the Congo dwarf buffalo only reaches some 42 inches at the shoulder.

SMALLER AFRICAN BUFFALOES—*continued.*

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
23½	15	10	Gold Coast . . .	Major G. S. C. Jenkinson.
23	16½	8½	Nigeria . . .	Julius Jeppé.
-21¾	15¾	4	Do. . .	Capt. C. A. Wilding.
21½	12¾	2¼	West Africa . . .	British Museum.
21	15	9½	Nigeria . . .	A. Ohlsson.
18½	10¾	5½	Central Africa . . .	Capt. Denham and Col. Clapperton, Brit. Museum.
18	16½	17½	Victoria Island, Lower Niger	R. H. Monck-Mason.
17	18½	19½	Nigeria . . .	A. W. M. Brodie.
♀ 17	11¾	6¾	Central Africa . . .	British Museum.
17	12	14½	Nigeria . . .	P. A. Clive.
16¾	10¾	6¼	Jebba, Nigeria . . .	Capt. A. H. Festing.
15¾	11	9¼	Nigeria . . .	Sir Edmund G. Loder, Bart.
15	6½ <sup>1</sup>	14	Do. . .	Major A. J. Arnold, D.S.O.
-14¾	11¼	8¾	Gaboon . . .	Dr. Percy Rendall.
14½	8½	7½	Sette Cama., W. Africa	British Museum.
14¼	12¼	10½	?	Sir Victor Brooke's Collection.
13¾	10¼	28½	Gambia . . .	Late Earl of Derby, Brit. Museum.
♀ 13	10½	10½	Nigeria . . .	Julius Jeppé.
♀ 11½	9½	...	Lokoja . . .	Major A. J. Arnold, D.S.O., Brit. Museum.
♀ 11	8½	10	West Africa . . .	Sir Edmund G. Loder, Bart.
♀ 9½	7¼	8½	Do. . .	Hon. Walter Rothschild.

<sup>1</sup> Width of palm.

Skull and Horns of Congo Buffalo, from Major A. J. Arnold's specimen.



Head of Indian Buffalo. Shot by the Maharaja of Kuch Behar.

**INDIAN BUFFALO or ARNA (*Bos bubalis*).**

No one is the least likely to confuse this animal with the Cape species. Both belong, indeed, to the same group of the genus *Bos*, and have the rounded upper portion of the head and angulated horns. In the Indian species, however, the head is much longer, the ears are narrower and less heavily haired, and the horns of the male are widely separated on the forehead, and totally different in form. Two types of horns may be recognised, one very massive, and curving regularly up from each side of the head in a subcircular manner; the other much slenderer, though quite as long often, directed for the greater part of their length almost straight out from the head, and always with a wider spread; these latter horns being those of females. Height at shoulder about 6 feet 2 inches; girth behind shoulder, 10 feet 8 inches. In a bull shot by the Maharaja of Kuch Behar the length from the nose to the tip of the tail was 14 feet 2 inches, and to the base of the tail 11 feet; the maximum girth being 10 feet 8 inches, and the weight of the head when cut off, 158 lbs.

*Distribution.*—Typically India, where the range includes the plains of the Bramaputra and Ganges from the eastern end of Assam to Tirhut, and the Terai as far west as Rohilcund, the plains near the coast in Midnapore and Orissa, and also the plains in the Eastern

Central Provinces as far south as the Godaveri and Pranrita rivers. A fawn-coloured race occurs in Assam, and smaller varieties in Ceylon and some of the Malayan islands. In a domesticated state, South Europe, Egypt, etc. Native name of male, *arna*; of female, *arni*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
77 $\frac{3}{8}$	17 $\frac{1}{8}$	...	...	...	?	British Museum.
-71	21 $\frac{1}{2}$	34 $\frac{3}{4}$	60	...	Assam . . .	Measured by A. O. Hume, C.B.; shot by A. Forbes.
-♀ 70 $\frac{1}{2}$	18	...	64	78	Do. . .	The late Sir A. Campbell-Orde.
65 $\frac{3}{4}$	20 $\frac{1}{2}$	...	...	...	Do. . .	Col. J. Mathie, British Museum.
-♀ 64 $\frac{1}{2}$	18	42 $\frac{1}{2}$	60	96	Do. . .	The late Sir A. Campbell-Orde.
-63	18	...	...	60	Do. . .	Do.
62	17	101	...	...	Do. . .	Hon. Walter Rothschild.
♀ 61 $\frac{3}{8}$	15 $\frac{3}{4}$	22 $\frac{1}{6}$	45 $\frac{1}{2}$	...	Kuch Behar . . .	H. H. the Maharaja of Kuch Behar.
♀ 61 $\frac{1}{2}$	16	22	48	...	Assam . . .	Hon. Walter Rothschild.
60	22	...	64	72	Central Provinces . . .	B. Vincent.
60	20	40	52	...	?	Sir Edmund G. Loder, Bart.
58 $\frac{5}{8}$	12 $\frac{3}{8}$	...	...	...	?	British Museum.
58 $\frac{1}{2}$	12 $\frac{3}{4}$	...	...	...	?	Do.
♀ 58	15	46 $\frac{1}{2}$	59	...	Assam . . .	Rowland Ward.
-57	18	...	...	...	Central Provinces . . .	J. D. Inverarity.
57	18 $\frac{1}{2}$	41 $\frac{1}{2}$	60	...	Do. . .	Lieut.-Col. G. D. F. Sullivan.
-57	15	49	52	...	Assam . . .	A. H. Straker.
-♀ 57	14 $\frac{1}{2}$	53	61	...	?	Sir Edmund G. Loder, Bart.
-56	18	29 $\frac{1}{2}$	...	57 $\frac{1}{2}$	?	J. Whitaker.
56 $\frac{1}{4}$	21 $\frac{1}{2}$	40	52 $\frac{3}{4}$	...	Assam . . .	A. O. Hume, C.B.
♀ 56	19 $\frac{1}{4}$	33 $\frac{7}{8}$	50 $\frac{1}{2}$	...	Kuch Behar . . .	H. H. the Maharaja of Kuch Behar.
56	15 $\frac{1}{2}$	55 $\frac{1}{2}$	58	...	Do. . .	Eyre Coote.
55 $\frac{1}{2}$	18 $\frac{1}{2}$	29	44	...	?	J. Carr Saunders.
-♀ 55	13 $\frac{1}{2}$	...	...	...	Bhutan Duars . . .	Major-Gen. Alexander A. A. Kinloch.
55	22	55 $\frac{1}{2}$	62	66	Central Provinces . . .	L. T. Harris.
54 $\frac{1}{2}$	18 $\frac{1}{8}$	38 $\frac{1}{2}$	48 $\frac{7}{8}$	...	?	Hume Collection, British Museum.

INDIAN BUFFALO or ARNA (*Bos bubalis*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
♀ 54½	12¾	69¾	70	...	Assam . .	A. O. Hume, C.B.
54½	19	50	59	64	?	Viscount Powerscourt.
54	20	40	47	55	?	Do.
-54	23	39	...	59½	Burma . .	Pegu Club, Rangoon.
53¼	12⅞	23½	40⅞	...	?	Hume Collection, British Museum.
53½	12½	...	...	...	Nepal . .	The late B. H. Hodgson, British Museum.
<sup>1</sup> 53½	23 (6 ft. 2½ ins. at shoulder)	30	42½	...	Kuch Behar . .	H. H. the Maharaja of Kuch Behar.
-53	...	...	...	...	?	Lucknow Museum.
51¼	18½	22	38½	...	Assam . .	Sir Peter Walker, Bart.
-51⅜	19⅜	45⅜	50	...	Central Provinces	P. H. G. Powell-Cotton.
-50¾	18⅜	55¼	...	65	Patna State .	Lieut.-Col. F. H. Whitby.
♀ 50½	14¾	40½	59	...	Central Provinces	Col. M. M. Bowie.
50	18½	48½	60	...	Do. . .	Capt. C. F. Pinney.
50	13½	33	38½	...	Assam . .	Noel Fenwick.
50	17	31¾	50	...	Do. . .	D. M. Lumsden.
-49¾	17½	16½	37	...	Kuch Behar . .	Count Scheibler.
48½	18½	33	51	...	Central Provinces	Col. F. C. Lister-Kay.
48½	19	27	47	...	Assam . .	Major E. T. Paul.
-48½	13¾	48¾	57	...	Central Provinces	P. H. G. Powell-Cotton.
48	19	33	50	...	Do.	Major H. C. Morland.
48	11¾	29¾	41½	...	Assam	Surg.-Capt. A. Pearse.
-48	20	...	...	...	Do.	H. Lennard.
♀ 47½	13¾	23	47	...	?	Major C. B. Wood.
47	19	25	50	...	?	H. De Pré.
-46½	20	42½	55½	...	Kuch Behar	Prince Hans Henry of Pless.
46½	20	42½	54	...	Assam . .	Col. R. Pole-Carew, C.B.
46½	13¾	32	41	..	Kuch Behar	J. C. O'Donnell.
46½	17½	32	41	...	?	Dublin Museum.

<sup>1</sup> Measured round outside curves across skull, 9 ft. 11½ in. Another pair, 10 ft. 5 ins., circumference of horn at bone, 21 inches.



INDIAN BUFFALO or ARNA (*Bos bubalis*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
46	17½	32	41	...	?	Dublin Museum.
45½	13	39	49	...	Kuch Behar .	Lord Wolverton.
44½	14½	15½	38	...	Assam .	L. Truninger.
44	19	27½	46½	...	Do.	Hon. S. Tollemache.
44	20	28½	44	...	Do.	A. J. Walter.
♀ 43¾	12½	38½	...	...	Durbangah .	Duke of Portland.

The following specimens are mostly from Ceylon :—

♀ 35	9½	31¾	37½	...	Ceylon .	R. Wahrmann.
34½	15½	25¾	35	...	Do.	Earl Cairns.
♀ 33½	9	31½	37	...	Do. .	Do.
31¾	16	28	...	38½	Do. .	Marquis Camden.
31½	16	...	47½	...	South Australia (introduced)	H. L. Heber Percy.
♀ 31½	11¾	34½	...	38½	Ceylon . . .	Surg.-Major G. E. Hale, D.S.O.
30¾	14	28	33¾	...	Do. . .	Count J. Potocki.
30¾	14	22	32	...	Do. . .	H. E. Lindsay.
30½	15	22	...	35½	Do. .	A. R. Hay.
29½	10½	26	32	...	Do. . .	Capt. John Fuller.
26¾	14¾	28¾	25	...	Formosa (introduced)	The late R. Swinhoe, British Museum.



Head of Bull Anoa, from life.

**ANOA (*Bos depressicornis*).**

The smallest member of the ox tribe, characterised by its straight, upright horns, and the frequent presence of white spots on the sides of the head or elsewhere. Although so different in the form of the head and horns from the adult Indian buffalo, the anoa is in these respects much more like the young of the latter; and they are connected to a considerable extent by the tamarau, or Philippine buffalo (*Bos mindorensis*) of the island of Mindoro. As in all the Oriental bovines, the hair of the fore part of the back is directed forwards in the anoa. Height at shoulder about 3 feet 3 inches.

*Distribution.*—The island of Celebes.

Length on front curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
15 $\frac{3}{8}$	7 $\frac{1}{8}$	7 $\frac{1}{2}$	Celebes . . . .	Paris Museum.
12 $\frac{3}{8}$	6	6 $\frac{1}{2}$	Do. . . . .	British Museum.
12 $\frac{1}{4}$	6 $\frac{1}{4}$	8 $\frac{3}{4}$	Do. . . . .	Do.
11 $\frac{1}{2}$	5 $\frac{3}{4}$	7 $\frac{1}{4}$	Do. . . . .	The late Gen. Hardwicke, British Museum.
10	5 $\frac{7}{8}$	5 $\frac{5}{8}$	Do. . . . .	Sir Victor Brooke's Collection.
9 $\frac{1}{2}$	8 $\frac{1}{2}$	8 $\frac{1}{2}$	Do. . . . .	Dublin Museum.
8 $\frac{7}{8}$	4 $\frac{3}{8}$	4 $\frac{3}{4}$	Do. . . . .	Sir Edmund G. Loder, Bart.



Skull and Horns of Bull and Cow Bison, shot by St. George Littledale.

#### EUROPEAN BISON or ZUBR (*Bos bonasus*).

The great elevation of the fore-quarters, the mass of long hair clothing the head, shoulders, and fore-part of the body, together with the peculiar form of the head and horns, the latter of which are cylindrical, serve at once to distinguish the bison from the other members of the ox tribe. There is also a difference in the number of ribs between the bison and the more typical oxen, the number in the former varying from 14 to 15 pairs. In the European species the mass of hair on the fore-quarters is not so long as in its American cousin, the form of the skull is different, and there are marked points of difference in the general appearance which render it easy to distinguish between the two species. Some difference may be noted between Caucasian and Lithuanian specimens, but it is doubtful whether these are sufficient to indicate a racial distinction. Height at shoulder 6 feet 1 or 2 inches. In a bull killed by Mr. St. George Littledale, the length from the nose to the root of the tail measured 10 feet 1 inch, the height at the shoulder 5 feet 11 inches, and the approximate girth of the body 8 feet 4 inches.

*Distribution*.—At the present day restricted to the Caucasus and the forest of Bielowitzka in Lithuania; the herds in the latter district existing in a protected state. The name aurochs, so commonly applied to the bison, properly belongs to the extinct wild ox of Europe.

EUROPEAN BISON or ZUBR (*Bos bonasus*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
18½	12½	13½	19½	Lithuania	British Museum (presented by the Czar of Russia).
-18.2	10.8	17.5	20.14	Bielowitzka	Prince Henry of Liechten- stein.
-18	12½	16	20	Caucasus	St. George Littledale.
17½	10	18½	...	Bielowitzka	Major Algernon Heber-Percy.
17.4	13.3	13.4	20.10	Do.	Prince Henry of Liechten- stein.
16½	12½	21½	24½	?	Sir Edmund G. Loder, Bart.
♀ 15½	8	6	...	?	Major Algernon Heber-Percy.
♀ 13	8½	9½	14	Caucasus	St. George Littledale.



Skull and Horns of American Bison.

**AMERICAN BISON** (*Bos bison*).

Some of the points distinguishing this species from the European bison have been mentioned under the head of the latter, but it may be added that in the typical race of the former the horns are shorter, thicker, blunter, and more sharply curved. In the skull of the American animal the sockets of the eyes have a more tubular form. Height at shoulder about 6 feet; weight from 15 to 20 cwt.; an adult bull weighed by W. T. Hornaday scaled 1727 lbs.

*Distribution*.—The greater portion of Western North America, ascending to the Great Slave Lake, and descending to New Mexico and Texas; now nearly exterminated. American writers recognise two races (or species), the prairie bison (*B. bison typicus*) and the larger wood-bison (*B. bison athabascæ*) of the forest highlands of the North-West.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside spread.	Locality.	Owner.
-21½	15¼	...	35	Northern Montana .	W. F. Sheard.
20⅞	15	...	outside 30½	Wyoming . . .	Hon. F. Thellusson.
-20¼	16⅞	33½	...	?	W. H. Root.
-19	12½	...	...	W. Montana . .	P. Liebinger.
18⅞	14¾	...	16⅞	Do. . .	The late J. S. Jameson.
-18¼	14	26¼	29	Sioux Country . .	Sir Greville Smyth, Bart.
-18	14	...	...	Montana . . .	F. Sauter.

AMERICAN BISON (*Bos bison*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
17 $\frac{3}{4}$	12 $\frac{3}{8}$	15 $\frac{1}{8}$	...	?	H. R. H. the Duke of Saxe- Coburg and Gotha.
-17 $\frac{1}{2}$	12 $\frac{1}{2}$	...	...	S.-W. Montana	Theodore Roosevelt.
17 $\frac{1}{2}$	12	...	25 $\frac{1}{2}$	Wyoming	H. R. H. le Duc d'Orléans.
17 $\frac{1}{2}$	13 $\frac{1}{2}$	21	...	?	Viscount Powerscourt.
17 $\frac{1}{8}$	11 $\frac{3}{8}$	10 $\frac{3}{8}$	17 $\frac{1}{8}$	?	British Museum.
-17	14	17 $\frac{1}{2}$	...	Yellowstone, Montana	Count E. Hoyos.
16 $\frac{5}{8}$	14 $\frac{1}{4}$	24	...	Bighorn Mts., Wyoming	Moreton Frewen.
16 $\frac{1}{2}$	12 $\frac{1}{2}$	19 $\frac{3}{8}$	...	Colorado	Sir Edmund G. Loder, Bart.
16 $\frac{1}{4}$	13 $\frac{1}{2}$	14 $\frac{1}{2}$	...	?	Duke of Portland.
16 $\frac{1}{8}$	15 $\frac{7}{8}$	25 $\frac{3}{4}$	...	Colorado	Sir Edmund G. Loder, Bart.
15 $\frac{1}{2}$	14 $\frac{3}{8}$	...	19 $\frac{3}{4}$	Wyoming	St. George Littledale.
-15.8	12.14	15	...	Indian Territory near Texas	Prince Henry of Liechten- stein.
14	...	12 $\frac{1}{4}$	...	North Park, Colorado	Col. Ralph Vivian.
13 $\frac{1}{2}$	13 $\frac{1}{2}$	17 $\frac{1}{2}$	...	?	G. Wrey.
13 $\frac{3}{8}$	12	...	...	?	Hon. Walter Rothschild.

1 Wood Bison.



Skull of Male Yak. From a specimen in the British Museum,  
presented by A. O. Hume, C.B.

**YAK (*Bos grunniens*).**

The plateau of Tibet is remarkable for the number of its peculiar mammals, among which is the yak. Apparently its nearest relatives are the bisons, but the yak has not the great elevation of the withers in comparison with the hind-quarters so distinctive of the latter, and the long hair forms a fringe on each side of the flanks, shoulders, and thighs, as well as a tuft on the chest, while the tail is clothed with a huge mass of similar long hair, forming, when cut off and mounted, the well-known "chowries." Yak horns are much larger than those of living bison, and have a totally different curvature; while there are also important differences in the skull. Height at shoulder from about 4 feet 10 inches to at least  $5\frac{1}{2}$  feet; girth behind shoulder, 9 feet  $1\frac{1}{2}$  inches; length from between horns to base of tail, 8 feet  $\frac{1}{2}$  inch;

tail, 3 feet  $2\frac{1}{2}$  inches; from between horns to nose, 1 foot  $3\frac{1}{2}$  inches (Capt. H. M. Biddulph). Weight about 1140 lbs. Wild yak are uniformly blackish brown in colour, any trace of white indicating domestication, and probably cross-breeding.

*Distribution.*—The plateau of Tibet, part of the Kansu province of China, and Northern Ladak, at elevations between about 14,000 and 20,000 feet. The peculiar grunting cry from which the animal takes its name is developed only in the domestic breed.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
-39	...	...	?	Lucknow Museum.
-38 $\frac{3}{4}$	18 $\frac{1}{2}$	26 $\frac{1}{4}$	Kuenluen Mts.	A. O. Hume, C.B., (shot by late A. Dalglish).
38 $\frac{1}{4}$	17	19	Do.	Hume Collection, Brit. Museum (picked up by Mr. Carey).
35 $\frac{1}{2}$	15	16	?	E. L. Phelps.
35 $\frac{1}{4}$	14 $\frac{1}{2}$	17	Tibet .	St. George Littledale.
34	12	30 $\frac{1}{2}$	Ladak	Hon. Walter Rothschild.
-32 $\frac{3}{4}$	16 $\frac{1}{4}$	18 $\frac{3}{4}$	Do.	Capt. H. M. Biddulph.
-32 $\frac{3}{4}$	14	17 $\frac{3}{8}$	Do.	P. H. G. Powell-Cotton.
32	13 $\frac{7}{8}$	15 $\frac{1}{4}$	Do.	H. C. V. Hunter.
32	14 $\frac{1}{2}$	9	Do.	I. Morse.
32	16	17	Do.	P. Church.
-31 $\frac{7}{8}$	14 $\frac{1}{4}$	18 $\frac{1}{4}$	Chang Chenmo	P. H. G. Powell-Cotton.
31 $\frac{3}{4}$	16	16 $\frac{3}{4}$	Do.	Rowland Ward.
31	14	...	Do.	Col. F. C. Lister-Kay.
31	13 $\frac{1}{2}$	14	Ladak	Arnold Pike.
30 $\frac{3}{4}$	13 $\frac{1}{2}$	10 $\frac{1}{2}$	Do.	Sir Robert Harvey, Bart.
30	13	15 $\frac{1}{4}$	Chang Chenmo .	H. Z. Darrah.
29 $\frac{3}{4}$	14	12	?	Hume Collection, British Museum.
29 $\frac{1}{2}$	13 $\frac{3}{8}$	11	Chang Chenmo .	Lieut-Col. G. D. F. Sullivan.
29	15	9	Do.	Sir Edmund G. Loder, Bart.
29	13 $\frac{1}{2}$	13 $\frac{1}{4}$	Ladak	Arnold Pike.
28 $\frac{3}{4}$	15	13	Do.	G. B. Milne.
28 $\frac{1}{4}$	15 $\frac{3}{4}$	14 $\frac{1}{2}$	Do.	P. Church.
-28	16	17 $\frac{7}{8}$	Tibet .	Major-General Alexander A. A. Kinloch.



YAK (*Bos grunniens*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
28	13	28	Tibet . . . .	J. Bennett Stanford.
28	13 $\frac{1}{4}$	29 $\frac{1}{2}$	Near Manasarowar Lake	Capt. B. H. Boucher.
27 $\frac{7}{8}$	11 $\frac{3}{4}$	18 $\frac{3}{8}$	?	The late B. H. Hodgson, British Museum.
27 $\frac{1}{2}$	13 $\frac{1}{2}$	16 $\frac{1}{2}$	Tibet . . . .	Capt. C. B. Vandeleur.
27	13	15 $\frac{1}{4}$	Ladak . . . .	Major C. S. Cumberland.
26 $\frac{1}{2}$	13 $\frac{1}{2}$	19	Chang Chenmo . .	Col. J. Biddulph.
25 $\frac{3}{4}$	12	16 $\frac{3}{4}$	Ladak . . . .	Major J. A. Orr-Ewing.
25 $\frac{1}{2}$	13	17	Do. . . . .	Capt. H. H. P. Deasy.
24 $\frac{1}{2}$	11 $\frac{1}{4}$	14	Tibet . . . .	T. W. Greenfield.
♀ 24 $\frac{1}{2}$	8 $\frac{1}{2}$	5 $\frac{3}{4}$	Ladak . . . .	G. B. Milne.



Head of Bull Yak.



Head of Male Gaur.  
(After Forsyth.)

**GAUR** (*Bos gaurus*).

This splendid bovine, the miscalled bison of Anglo-Indian sportsmen, is the typical representative of a group of three oriental species nearly related to the domestic ox, but presenting certain well-marked points of difference. Among these may be noted the shorter head and tail, the frequently elliptical section of the horns, and, above all, the presence of a more or less distinct ridge running from the withers to the middle of the back, where it terminates in a sudden step. In the gaur this ridge is very strongly developed, but the most distinctive feature of the animal is the great arch on the crown of the head between the horns, which bends forward to communicate a concave profile to the forehead. With the exception of the white "stockings"

common to all the members of the group, the colour of the gaur is uniform ; but the much flattened horns are of a peculiar yellowish green tint at the base. The height of adult bulls at the shoulder varies from about 6 feet to 6 feet 4 inches, though specimens of not more than 5 feet 5 or 6 inches are killed.

*Distribution.*—The forest hill-tracts of Peninsular India, Assam, Burma, and the Malay Peninsula, as well as the forests along the outer Himalaya as far west as Nepal. South of the Ganges, where it has not been exterminated, the gaur inhabits suitable districts in Chutia Nagpur, Orissa, the Northern Circars, Central Provinces, Hyderabad territories, and all the Western Ghats.

Length on outside curve of longest horn.	Circum- ference at base.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
-39½	20½	18½	...	43	Salwin, Burma	Bombay Natural History Society's Museum.
-39	19½	18½	32	...	N. Travancore.	Arthur W. Turner.
-35	18	...	...	...	S. India . .	The late General Douglas Hamilton.
34½	20	25	...	40½	Vardi Mullay .	Baron von Massow.
-34	19½	33½	...	...	?	Measured by Colonel J. Biddulph.
33½	18	24	...	41	Pulny Hills, Madura District	J. D. Goldingham, Bethnal Green Museum.
...	17½	28½	...	43½	Travancore	H.H. the Maharaja of Travancore, G.C.S.I.
-...	17½	25	...	...	Do. .	Do.
33½	18½	25	33½	42½	Do. .	T. W. Greenfield.
-33½	21	...	32½	38½	Mysore . .	Surgeon-Captain C. W. H. Whitestone.
33½	18	23½	34½	...	Kuch Behar	Maharaja of Kuch Behar.
33	17½	20½	32½	...	?	Capt. P. Z. Cox.
-33	14	...	...	34	Western Ghats	J. D. Inverarity.
32½	...	27	...	...	Do.	Lieut.-Col. L. L. Fenton.
-32	19	27	...	...	Assam . .	Major James Grant.
-32	18	...	...	...	Burma . .	Indian Museum.
31½	17½	21½	32½	...	Travancore Hills	A. O. Hume, C.B.
-31½	18	29	...	43	?	Bombay Natural History Society ( <i>Proceedings</i> ).
-31½	17	21	32½	...	?	Dublin Museum.
31½	17½	22½	27½	40½	Pulny Hills, Madura District	J. D. Goldingham, Bethnal Green Museum.
31	19½	24½	30½	37½	Mysore . .	Viscount Powerscourt.

GAUR (*Bos gaurus*)—*continued*.

Length on outside curve of longest horn.	Circum- ference at base.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
30½	19½	16	...	35	Travancore	Lord Douglas Compton.
30¼	18½	22½	37¼	...	Do.	A. T. Mackenzie.
30	19½	11	32½		Kuch Behar	H. H. the Maharaja of Kuch Behar.
-30	20	15	26	..	?	G. Beck.
-30	16	...	38	41	Central Provinces	Lieut.-Col. J. W. H. Flana- gan.
-30	19	16	32		Travancore	J. D. Rees.
29⅞	18½	30	34	...	?	Sir Edmund G. Loder, Bart.
29¾	18⅝	25½	30⅝	...	Hassanoor Hills, S. India	{ Sir Victor Brooke's Collec- tion. (Shot by the late Gen. Douglas Hamilton.)
-29¾	19	22⅝	31⅝	36⅞	Mysore	
-29½	19½	16½	26½	...	Narbada Valley	Major-General Alexander A. A. Kinloch.
-29½	18	...	...	33	Central Provinces	J. D. Inverarity.
29½	17¾	28½	39	...	Siam	A. Waley.
29½	17	32½	43	...	Coimbatore, S. India	P. Church.
29¼	12⅞	...	18	...	Nepal	The late General Hardwicke, British Museum.
-29	22	..	...	..	?	Otho Shaw.
-29	17½	...	...	35	North Kanara	Lieut.-Col. L. L. Fenton.
29	16	30	...	41½	Assam	A. J. Walter.
28¾	18½	14½	30	...	Travancore	Lord Wenlock, G.C.I.E.
28¾	17½	23½	31	...	South India	Captain H. M'Micking.
28½	15¾	18⅝	28⅝	...	?	Major-General Sir Arthur Ellis, K.C.V.O.
28½	18	15¾	33½	...	Travancore	H. L. Cottingham.
28½	15½	17	27	...	?	Hume Collection, British Museum.
-28¼	18½	28⅝	...	38⅝	Raipur, C. P.	Captain M. M'Neill.
28	18	22½	34¾	...	Assam	Hon. S. Tollemache.
28	16	10½	24	...	Central Provinces	Martyn Kennard.
28	19¾	34½	43	...	Upper Burma	C. W. A. Bruce.
28	16½	15¾	...	31½	?	H. W. Keys.
28	15½	16½	...	31	Khandesh	A. Cumine.
-28	17½	17	...	36½	Mysore	Veterinary-Captain G. H. Evans.

GAUR (*Bos gaurus*)—*continued*.

Length on outside curve of longest horn.	Circum- ference at base.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
27 $\frac{7}{8}$	17 $\frac{1}{8}$	32 $\frac{1}{4}$	32 $\frac{3}{4}$	...	Central Provinces	Major C. S. Cumberland.
27 $\frac{3}{4}$	19 $\frac{3}{4}$	37	41	...	Kalkerray, S. India	Captain W. E. Fairholme.
27 $\frac{3}{4}$	18 $\frac{3}{4}$	24 $\frac{3}{8}$	30 $\frac{1}{2}$	...	?	Major G. A. L. Carew, D.S.O.
-27 $\frac{1}{2}$	20 $\frac{1}{2}$	26 $\frac{1}{4}$	...	36 $\frac{1}{2}$	?	Major-General W. Rice.
27 $\frac{1}{2}$	17	26 $\frac{1}{4}$	36	...	Assam . .	L. Truninger.
27 $\frac{1}{2}$	19	15	31 $\frac{3}{4}$	...	Travancore .	Captain Hon. E. Baring.
27 $\frac{1}{2}$	17 $\frac{1}{4}$	20 $\frac{1}{4}$	35	...	Tezpor, Assam	A. Y. Thomson.
27 $\frac{1}{2}$	18 $\frac{1}{4}$	20 $\frac{1}{4}$	34	...	Travancore .	Captain Hon. E. Baring.
-27	16 $\frac{3}{4}$	22	30 $\frac{1}{2}$	...	South India .	H. W. Murray.
-27	15	...	17	...	Panarel, Central India	Captain A. Hicks-Beach.
26 $\frac{7}{8}$	15 $\frac{7}{8}$	16 $\frac{1}{4}$	27	...	?	Hon. Walter Rothschild.
26 $\frac{3}{4}$	14 $\frac{7}{8}$	13 $\frac{5}{8}$	24 $\frac{1}{4}$	...	Sahaydri Moun- tains, S. India	Captain W. Tompson, British Museum.
26 $\frac{1}{2}$	17	17 $\frac{1}{2}$	...	32 $\frac{1}{2}$	Central Provinces	Surgeon-Captain A. Pearse.
26 $\frac{1}{2}$	18 $\frac{1}{4}$	26 $\frac{3}{4}$	...	36 $\frac{1}{2}$	?	Major R. H. Fraser.
26	18 $\frac{1}{2}$	23 $\frac{3}{8}$	32 $\frac{3}{4}$	...	Central Provinces	G. de H. Smith.
26	19	16 $\frac{1}{2}$	32 $\frac{1}{2}$	...	Do.	Captain C. F. Pinney.
26	17 $\frac{1}{4}$	19 $\frac{3}{8}$	...	...	?	Lord Wolverton.
26	15	26 $\frac{1}{4}$	36	...	Central Provinces	Captain John Fuller.
26	15	33 $\frac{1}{4}$	...	40	Do.	C. F. Egerton.
26	17 $\frac{1}{4}$	27	36	...	Do.	Colonel M. M. Bowie.
26	18	23	35	...	Burma . .	Captain S. L. Robinson.
25 $\frac{1}{2}$	17	21 $\frac{1}{2}$	28 $\frac{1}{4}$	33 $\frac{1}{2}$	S. India	Captain C. S. Timins.
25	18 $\frac{3}{4}$	18 $\frac{1}{4}$	29	...	?	Lord Elphinstone.
25	18	23 $\frac{3}{4}$	33 $\frac{3}{4}$	...	Kanara . .	Captain G. J. Fitzgerald.
25	17 $\frac{1}{4}$	18 $\frac{1}{2}$	34	...	Central Provinces	Dr. W. P. V. Bainbrigge.
24 $\frac{1}{2}$	15 $\frac{3}{4}$	24 $\frac{5}{8}$	34	...	?	H. De Prée.
-24	18	34	...	38 $\frac{3}{8}$	?	J. D. Inverarity.
-24	19	27	34	...	Burma . .	W. F. Loftus-Tottenham.
23	15	22	33 $\frac{1}{2}$	...	Assam .	Major E. T. Paul.

GAUR (*Bos gaurus*)—*continued*.

Length on outside curve of longest horn.	Circum- ference at base.	Tip to Tip.	Widest inside.	Widest outside.	Locality.	Owner.
♀ 22	10½	14½	27	..	?	H. De Prée.
♀ 20½	10½	12	...	...	Madras . .	Major J. W. M. Cotton.
- ♀ 19½	11½	...	...	...	N. Kanara .	Lieutenant-Colonel L. L. Fenton.
♀ 24	13½	13	22	27	N. Travancore Hills	A. O. Hume, C.B. (See illustration.)



Skull and Horns of Cow Gaur, from A. O. Hume's specimen



Skull and Horns of Bull Gayal, from A. O. Hume's specimen.

### GAYAL (*Bos frontalis*).

Chiefly known in a half-domesticated condition, the gayal is a rather smaller animal than the gaur, of a blacker colour, with a large dewlap, and with a straight line between the bases of the massive horns, which are more divergent, less curved upwards, more nearly cylindrical in section, and of a darker colour. The head, too, is much shorter, with the forehead very broad and flat.

*Distribution*.—Apparently the Tenasserim district in a wild state, but kept in a semi-domesticated condition by many of the hill-tribes of Assam and Chittagong. Gayal have been crossed with the American bison, the resulting progeny being fertile.

Length on outside curve.	Circum- ference.	Tip to Tip.	Locality.	Owner.
15	11½	26⅔	?	British Museum.
14½	13½	28	Tenasserim Hills	A. O. Hume, C.B. (See illus- tration.)
-14	14	...	?	Indian Museum.
12⅝	13¼	27¾	?	British Museum.



Head of Male Burmese Banting. (From the *Proc. Zool. Soc.*, 1898.)

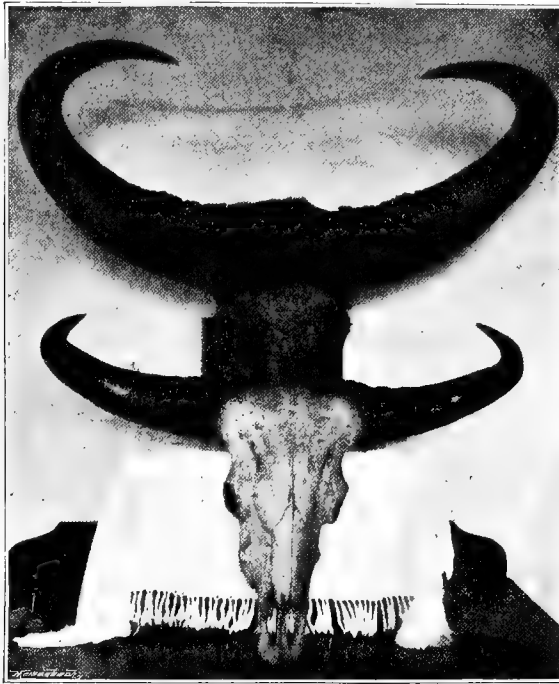
**BANTING (*Bos sondaicus*).**

The third and last member of the gaur group departs less widely from the type of the common ox than do the two others, the ridge on the withers being less developed, and the horns almost cylindrical. The cows, too, are always reddish coloured, although the bulls may be black, and in the latter sex at least there is always a large white patch on the rump. Very distinctive of the species is the presence of a horny shield on the crown of the head between the bases of the horns. Height at shoulder about 5 feet 9 inches.

*Distribution.*—Burma, the Malay Peninsula, Borneo, Java, Bali, and perhaps Sumatra. At least two distinct races of the banting are distinguishable. First, the true banting, or Java ox (*Bos sondaicus typicus*), from Java, and perhaps some of the other Malayan islands and the Peninsula. In this race the old bulls become of a deep blackish brown colour. The same tint is characteristic of the old male banting in Borneo, but the horns are directed more uprightly.



The second well-defined race (*B. sondaicus birmanicus*) inhabits Burma, and may extend northwards to Manipur. Old bulls retain the reddish tint of the cows throughout life, showing more or less of gray on the head.



Skulls of Gaur and Banting. Shot by Vet.-Capt. G. H. Evans.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.		Owner.
-33½	17	26½	35	Tammu, Burma	Upper	Surgeon-Capt. H. S. Wood.
-30	17	...	...	Java	.	Indian Museum.
-28½	17½	30½	36	Burma	.	Vet.-Capt. G. H. Evans.
-28½	15	26½	36½	Java	.	H. Van-Son.
26½	16½	21½	28	Do.	.	Sir Edmund G. Loder, Bart.
-26	18	17½	27	Burma	.	C. W. A. Bruce.
25¾	16¾	20¾	26¾	Siam	.	H. C. V. Hunter.
-25½	13½	29	32	Burma	.	W. H. Prendergast.

**BANTING** (*Bos sondaicus*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
25½	19½	24½	30	Burma . . .	C. W. A. Bruce.
24¾	12¼	15¾	24¼	Java . . .	British Museum.
-24½	14½	30	35	Pegu . . .	Vet.-Capt. G. H. Evans. (See illustration.)
21⅜	12¼	13⅝	19¼	Borneo . . .	H. B. Low, British Museum.
20⅝	12¼	18⅝	22⅝	Do. . . . .	Do.
20	16	22¾	24½	Kudah, B. N. Borneo	H. Ll. Davies.
♀ 20	12	21½	28	Upper Burma . .	C. W. A. Bruce.
-19¼	11¼	17	20	Borneo . . .	Sir Edmund G. Loder, Bart.
19	11⅝	18	21⅜	Java . . .	The late H. J. H. Platt.
18	13½	12½	...	Borneo . . .	Sir Edmund G. Loder, Bart.
17⅝	10⅝	7⅝	14¼	British North Borneo	W. B. Pryer, British Museum.
17½	10⅝	17¼	20¾	Siam . . .	H. C. V. Hunter.
16½	10¾	9½	13⅜	Sarawak . . .	British Museum.
16½	12¾	17½	18½	N. Borneo . . .	A. D. Boden.
♀ 15½	7½	7½	16½	Tammu, Burma . .	Surgeon-Capt. H. S. Wood.
♀ 7½	7½	6¾	...	Java . . .	The late H. J. H. Platt.

**DOMESTIC OXEN** (*Bos taurus* and *B. indicus*).

The domesticated cattle of Europe are the descendants of the primitive wild ox, or aurochs (a name frequently misapplied to the bison), of Europe and North Africa (*Bos taurus primigenius*), now completely extinct in the wild state, although it survived on the continent till the Middle Ages. On the other hand, the humped oxen (zebu) of India and the Galla cattle of Africa (*Bos indicus*) appear to trace their origin to a totally distinct species, also extinct in the wild state.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
81½	18½	103½	...	N'gamiland . . .	The late W. C. Oswell.
-?	17	100	124	Do. . . . .	A. Ohlsson.

DOMESTIC OXEN (*Bos taurus* and *B. indicus*)—*continued*.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest inside.	Locality.	Owner.
57	19½	82	...	Bechuanaland	Sir Edmund G. Loder, Bart.
56½	17½	76½	...	South Africa .	R. A. Cooper.
47	15½	21½	...	Abyssinia (Galla Ox)	The late H. Salt, British Museum.
44	12½	70½ (about)	...	?	British Museum.
42½	23½	22½	...	Central Africa	The late Col. Denham, British Museum.
41½	14	52½	...	Madagascar .	Bethnal Green Museum.
40½	12½	60½	...	Vienna (Polish Bull)	British Museum.
38½	10½	54½	...	Italy . .	Bethnal Green Museum.
35½	12½	59½	...	Cape of Good Hope	Do.
30½	12½	35	...	Spain .	Do.
29½	11½	28½	...	Gambia .	A late Earl of Derby, British Museum.
17½	10½	30½	...	Buenos Aires (Niata Cattle)	G. Claraz, British Museum.
17½	10½	25½	...	Gambia .	A late Earl of Derby, British Museum.
17½	10½	25½	...	India .	British Museum.
12½	8	16½	...	Angola	Sir Victor Brooke's Collection.
11½	7½	single horn	...	Nepal .	The late B. H. Hodgson, British Museum.

The following specimens belong to the so-called Wild Cattle of certain British parks, which are, however, certainly the descendants of at least partially domesticated breeds.

Length on outside curve.	Circum- ference.	Tip to Tip.	Widest Inside.	Locality.	Owner.
18½	9½	36½	...	Chartley Park	Hon. Walter Rothschild.
18½	7	34½	...	Do.	Major James Grant.
18½	10½	20	21½	Chillingham Park	Earl of Tankerville, British Museum.
♀ 18½	7	10½	15½	Do.	Do.
15½	9½	17½	18½	Northumber- land	Duke of Hamilton, British Museum.
15	7½	20½	...	Chartley Park	Captain G. W. Hill, R.N.

**HIPPOPOTAMUS** (*Hippopotamus amphibius*).

Swahili name <i>Kiboko</i> .	Abyssinian name <i>Gumare</i> .
Danakil name <i>Dul</i> .	Boer name <i>Zee-koe</i> .
Galla name <i>Robi</i> .	Swazi name <i>Imvubu</i> .
Basuto name <i>Ikubu</i> .	

Such a familiar animal as the uncouth and unwieldy hippopotamus—the largest member of the swine group—requires but little in the way of description here. It is widely distinguished from the pigs and warts-hogs by the broad and rounded muzzle, so unlike the disc-shaped snout of the latter; and consequently forms a family by itself. The tusks and molars are likewise of a totally different and distinctive type; while the feet have four sub-equal toes with symmetrical, rounded nails. In all its organisation the hippopotamus is beautifully adapted for a sub-aquatic life; the eyes and nostrils forming the highest points of the head, and thus allowing the creature to come up and breathe with the least possible exposure of its body. The weight of a full-grown bull hippo is at least three tons.

*Distribution*.—Formerly this animal frequented most of the rivers of Africa south of the Sahara, but it has long since been exterminated from the lower reaches of the Nile, and is daily becoming scarcer in the South African rivers. In the Zambesi, where it is less easily attacked than in the smaller rivers of Mashonaland, it is still abundant, as it also is in the Chobe and neighbouring rivers, as well as in Lake Ngami; and even in the lower reaches of the Orange River a few are still to be met with. North of the Zambesi these animals occur in great numbers. Hippos are chiefly hunted for the sake of their hides, which are manufactured into sjamboks, or raw-hide whips. Their tusks have also a certain commercial value, although not so great as formerly, when they were employed for artificial teeth.

In Liberia and some other parts of the West Coast there occurs the much smaller pigmy hippopotamus (*H. liberiensis*), an animal measuring only some six feet in length, and possessing more the habits of a pig. It also differs from the common species by having, as a rule, only one, instead of two, pairs of incisor teeth between the tusks.

A hippopotamus, shot on the Shiré River, British Central Africa, by F. Vaughan Kirby, measured as follows:

	ft.	in.		ft.	in.
Total length, nose to tail	14	2	Length of tusks	2	5
Tail	1	8	Circumference of tusks		8 $\frac{1}{4}$
Vertical standing height	3	10 $\frac{1}{2}$	Weight per pair	14 $\frac{1}{2}$	lbs.

These tusks measured 31 and  $30\frac{1}{4}$  inches, with circumference  $8\frac{3}{4}$  inches, after they were extracted from the skull.

Length round outside curve of tusk.	Circumference.	Locality.	Owner.
<sup>1</sup> 51	9 (malformed)	S. E. Africa	J. Lamont.
<sup>1</sup> 41	8 Do.	Tana River, East Africa	J. Benett Stanford.
<sup>1</sup> 38 protruding from jaw	...	Nyasaland	Major P. W. Forbes.
<sup>1</sup> 37 $\frac{1}{2}$	8 $\frac{1}{4}$	Shiré River	Comdr. A. T. Hunt.
32	9 $\frac{1}{2}$	Lualaba, Central Africa	S. L. Hinde.
31 $\frac{3}{4}$	10 $\frac{3}{8}$	?	Sir Clement Hill, Bart.
31 $\frac{5}{8}$	9 $\frac{1}{8}$	?	Sir Edmund G. Loder, Bart.
<sup>2</sup> 31 $\frac{1}{2}$	...	S. E. Africa	F. Vaughan Kirby.
30 $\frac{1}{2}$	9 $\frac{1}{8}$	St. Lucia Bay	Hon. Charles Ellis.
30	9 (weight 15 lbs. pair)	Do.	Do.
30	9	Shiré River	Staff-Surgeon J. Dowson, R.N.
30	9	Zambesia	E. W. Tompson.
-30	(weight 11 lbs.)	Katungas, Shiré River	E. B. Vertue.
29 $\frac{3}{4}$	8 $\frac{3}{4}$	Do.	F. C. Selous.
29 $\frac{1}{2}$	8	Do.	Dr. W. P. Y. Bainbrigge.
29	8	Do.	Do.
29	8 $\frac{1}{4}$	Shiré River	F. Vaughan Kirby.
29	9 $\frac{1}{2}$	?	Rowland Ward.
27 $\frac{1}{8}$	...	Atbara River, North-East Africa	W. D. James.
27	8	East Africa	E. Gedge.
26 $\frac{1}{2}$	8 $\frac{1}{2}$	Pungwe River	Earl of Dunmore.
-26 $\frac{1}{2}$	8 $\frac{1}{2}$	Zambesia	James J. Harrison.
25 $\frac{1}{2}$	8	Nyasaland	Alex. R. Alston.
19 $\frac{7}{8}$	...	Do.	Sir John Kirk, K.C.B.
-11 $\frac{1}{4}$ protruding from jaw	8 $\frac{1}{4}$	Shiré River	Dr. Percy Rendall.

<sup>1</sup> Malformed.<sup>2</sup> Straight tusk 19 ins. long.



Lower Tusk of Wild Boar.

**WILD BOAR (*Sus scrofa* and *S. cristatus*).**

Most of the European and Asiatic species of wild swine, forming the typical group of the genus *Sus*, are so like each other, that it is often a matter of difficulty to discriminate between them, and naturalists are not yet in accord as to the number of species which should be recognised. The European wild boar is a large coarsely-haired species, with an undercoat of woolly fur, no warts on the face, and standing about 33 inches at the shoulder. It lacks the crest or mane of long black bristles running from the nape down the back in its Indian cousin; and the last tooth in the lower jaw is of a rather less complex structure than in the latter. The wild boar of India (*S. cristatus*) is dear to the heart of the Indian sportsman, though he does contemptuously call its chase "pig-sticking."

"Pig-sticking" is considered quite as dangerous, if not more so than tiger-shooting. It is not a game of long bowls, but a close personal attack on a very fierce and pugnacious animal, endowed with strength, swiftness, and much tenacity of life. It takes a good horse and a good man to try conclusions satisfactorily with an old gray boar over nasty country, and the weapon used is only a spear. There are parts of the hilly country in India where it is impossible to ride, and

here the rifle may take the place of the spear; but then there is not much glory in shooting a pig. A solitary boar is frequently a morose and dangerous animal.

A Spanish boar killed by H.R.H. le Duc d'Orléans weighed 302 lbs.

*Distribution.*—Europe, Asia Minor, and North-East Africa.

Length outside curve of tusk.		Length of tusk out of gum.	Locality.	Owner.
Right.	Left.			
-11 $\frac{1}{2}$	...	...	Caucasus .	Col. Veernhof.
-11 $\frac{1}{4}$	...	...	Do. .	Capt. Robert Finnie.
9 $\frac{3}{4}$	...	...	Asia Minor .	Admiral Sir Michael Culme Seymour, Bart.
<sup>2</sup> 9 $\frac{5}{8}$	...	...	Caucasus .	Prince Demidoff.
9 $\frac{1}{2}$	...	...	Do. .	Do.
-9	...	...	Do.	Capt. Robert Finnie.
9	...	...	Albania .	Sir Reginald Cathcart, Bart.
-8 $\frac{5}{8}$	...	...	Algeria	Sir Edmund G. Loder, Bart.
<sup>1</sup> -8 $\frac{1}{2}$	8 $\frac{1}{8}$	3	Near Bona, Algeria .	Viscount Edmond de Poncins.
-8 $\frac{1}{2}$	8 $\frac{1}{2}$	1 $\frac{5}{8}$	Do.	Do.
-8	...	...	Albania	Capt. Robert Finnie.
8	2 $\frac{1}{2}$	...	Russia .	Count J. Potocki.

<sup>1</sup> Weight 275 lbs. clean.

<sup>2</sup> Weight 372 lbs.

Length outside curve of tusk.	Locality.		Owner.
-14 $\frac{3}{4}$ (malformed)	Purneah, Lower Bengal .	.	H. R. P. Carter, recorded in <i>Field</i> , 19th January 1895. (See illustration, p. 422.)
-14 $\frac{3}{8}$	Hills above Jamu		Col. Sir Neville Chamberlain.
-12 $\frac{9}{10}$	Java .		H. Van Son.
-10 $\frac{5}{8}$	North Kanara .	.	Bombay Natural History Society's Museum.
-10 $\frac{1}{2}$	?		Meerut Tent Club.
-10	India		The late Sir Samuel Baker.
-9 $\frac{3}{4}$	?		Meerut Tent Club.
9 $\frac{3}{4}$	?		Dr. Travers.
9 $\frac{1}{2}$	Burma .	.	Langford Whitehouse.
9 $\frac{3}{8}$	North Kanara		Lieut.-Col. L. L. Fenton.
9 $\frac{3}{8}$	Central Provinces .		Major J. S. Ashby.

**WILD BOAR** (*Sus scrofa* and *S. cristatus*)—*continued*.

Length out-side curve of tusks.	Locality.	Owner.
9 $\frac{1}{4}$	Central Provinces . . . .	The late J. Moray-Brown.
-8 $\frac{3}{4}$	Do. . . . .	Col. F. D. Lugard, C.B., D.S.O.
8 $\frac{1}{2}$	Jumna Valley . . . . .	Capt. F. C. Quicke.
8 $\frac{1}{2}$	Bengal . . . . .	J. M'Kie.
-8.30	Assam . . . . .	Viscount Edmond de Poncins.
-8 $\frac{1}{4}$	Bikanir . . . . .	Maharaja of Bikanir.
-7.85	Assam . . . . .	Viscount Edmond de Poncins.
8	? . . . .	Capt. P. A. Bainbridge.
7 $\frac{1}{4}$	Mhou . . . . .	H. Dibble.
7 $\frac{1}{4}$	? . . . .	Maharaja of Bikanir.



Head of Wild Boar.



**CAPE BUSH-PIG** (*Sus* [*Potamochoerus*] *choeropotamus*).

*Bosch-vark* of the Boers. *Ingulubi* of the Swazis and Zulus.

The bush-pigs, or river-hogs, of Africa and Madagascar form a peculiar group of swine characterised by having only 42, in place of 44, teeth, small tusks, and a large ridge-like prominence on each side of the face, due to the presence of a ridge of bone on the sheath of the tusk. The ears may be surmounted with tufts of long hair. The various species are best distinguished by the character of their skulls, colour forming a very uncertain guide. The Cape bush-pig, or *bosch-vark*, is very generally gray, but the late Sir Andrew Smith stated that "scarcely any two specimens of this species exhibit the same colours; some are a brownish black variegated with white, and others are almost entirely of a light reddish brown or rufous tint, without any white markings; indeed, such are the varieties that it is scarcely possible to say what are the prevailing colours." In British Central Africa, where they have been wrongly identified with the West African species, they are invariably reddish. Height at shoulder about 31 inches; weight, 35 lbs. Lower tusks average 6 to 7 inches long, and a good specimen shot by F. Vaughan Kirby has tusks protruding out of jaw  $4\frac{3}{8}$  inches.

*Distribution*.—South and South-East Africa.

**WEST AFRICAN BUSH-PIG or RED RIVER-HOG**

(*Sus* [*Potamochoerus*] *porcus*).

In this species the colour is always some shade of rufous, either shining brownish red with a tinge of yellow, or dark reddish yellow with black on the forehead, ears, and limbs, the mane of the back, part of the margins of the ears, tips of the long tufts of hairs with which they are surmounted, and streaks above and below the eyes white.

*Distribution*.—West Africa, from Angola to Senegambia, and eastwards to Monbuttu.

Height at shoulder.	Weight.	Locality.	Owner.
23 $\frac{1}{2}$	35 lbs.	Shiré River, British Central Africa	Dr. Percy Rendall.

**BABIRUSA** (*Babirusa alfurus*).

The pig-deer (to translate its Malay name) is not the least notable of several remarkable animals restricted to Celebes; the peculiar form and position of the upper tusks of the boars rendering them almost comparable to horns. Unlike other pigs, in which they curve upwards from the sides of the lips, the tusks grow from the centre of the muzzle, piercing through the skin, and as they are not worn by the lower pair, attain extraordinary dimensions. Both pairs are quite devoid of enamel; the lower ones growing from the sides of the jaw in the ordinary manner. The other teeth are somewhat less numerous than in ordinary pigs. In other parts of its organisation the babirusa is, however, very like the latter, although its nearly naked skin is remarkable for its coarse and rugged nature, being almost comparable to the bark of a tree. The height at the middle of the back, the highest point of the animal, is about 42 inches. Unlike the rest of its tribe, the female babirusa produces only a pair of young at a birth, which are of the same uniformly slaty hue as their parent. Babirusa are confined to the island of Celebes, where they afford good sport to the natives, who drive them into nets and then spear them.

Dr. F. H. H. Guillemard recorded in the *Cruise of the "Marchesa"* :

Weight, male, 128 lbs. ; female, 85 lbs.

Height at shoulder,  $27\frac{1}{2}$  in. ; female,  $25\frac{1}{2}$  in.

Length.		Locality.	Owner.
Upper tusks.	Lower tusks.		
-17	...	Celebes	H. Van Son.
-14 $\frac{1}{2}$	...	Do.	Dr. F. H. H. Guillemard.
-9 $\frac{1}{10}$	7 $\frac{5}{10}$	Do.	Dr. Percy Rendall.



Tusks of Male Wart-Hog, F. II. Barber's specimen.

**WART-HOG (*Phacochoerus æthiopicus*).**

*Bango* or *Nguruwe* of the Swahilis. *Ngolobwi* in the Lake Ngami country.  
*Ikulubi* of the Basutos.  
*Indaigazana* of the Swazis and *Ngolobwi* in the Chilala and Zulus. Chibisa countries.  
*Karkary* of the Somalis. *Ulak-vark* of the Boers.  
*Ngolobwi* in the Barotse country.

For downright ugliness the African wart-hog is hard to beat, and as it is well armed and possesses a bad temper, it is in all respects an undesirable acquaintance. The name is derived from the presence of three pairs of wart-like protuberances on the sides of the face between the eyes and the tusks; the head itself being characterised by the disproportionate length and flatness of the face. Unlike the true pigs, the stout upper tusks are longer than the lower pair; the inferior surfaces of their basal halves being worn to smooth facets by the points of the latter. Another peculiarity of the upper tusks is that they have no enamel, except at the extreme tips, which are soon worn off by use. But a further peculiarity is presented by the last molar teeth of each jaw, which, together with the tusks, are often the only teeth remaining in very old animals. They are both long and tall,

consisting of a number of closely-packed cylindrical columns of enamel, which, when worn, present a characteristic pattern. Except along the neck and back, where it carries a mane of bristly hair, the skin is nearly naked; and the young differ from those of ordinary pigs in being neither striped nor spotted. Height at shoulder, 30 inches.

*Distribution.*—The wart-hog is typically an inhabitant of South and South-East Africa. Animals of the same genus extend, however, right through East and Central Africa to Abyssinia; those from the latter country having been described as a distinct species, under the name of *P. africanus*. Not improbably, however, the northern animal is only a local race of the southern form. Wart-hogs, possibly from their habit of going to ground when pursued, are but seldom hunted with the spear; "pig-sticking" being, in fact, a sport practically unknown in Africa. The lower tusches seldom exceed 6 inches on the front curve.

Length on outside curve.	Length exposed from gum.	Locality.	Owner.
-27 } 26 }	...	Annesley Bay.	Capt. Ralph Berners, R.N.
20	17 $\frac{3}{4}$	South Africa . . .	F. H. Barber.
-16 $\frac{1}{2}$	13 $\frac{1}{2}$	?	J. Whitaker.
-15 $\frac{1}{2}$ } 15 }	13 $\frac{1}{2}$	Matanari Bush . . .	F. Vaughan Kirby.
-15	...	South-East Africa .	W. Russell Bowker.
14 $\frac{3}{4}$	...	British Central Africa	James Yule.
...	13 $\frac{3}{4}$	Zambesia . . . .	R. J. Cuninghame.
13 $\frac{1}{16}$	...	Somaliland	B. R. M. Glossop.
-13	...	Timbatti River, S.E. Africa	W. Russell Bowker.
...	13	South-East Africa	F. C. Selous.
...	11 $\frac{3}{4}$	Somaliland . . .	Viscount Edmond de Poncins.
-12	...	South-East Africa .	James Meldrum.
-11 $\frac{1}{2}$	...	Do.	Julius Jeppe.
-11 $\frac{1}{2}$	...	Do. . .	James J. Harrison.
-11 $\frac{1}{4}$	...	Somaliland . . .	J. D. Inverarity.
...	10 $\frac{3}{4}$	Mashonaland . . .	S. Chillingworth.
-11	...	East Africa .	Count Scheibler.

**WART-HOG** (*Phacochoerus æthiopicus*)—*continued*.

Length on outside curve.	Length exposed from gum.	Locality.	Owner.
11	...	British Central Africa . . .	R. Skeffington Smyth.
...	10 $\frac{5}{8}$	Sabi Flats, Transvaal . . .	Dr. Percy Rendall.
..	10 $\frac{1}{4}$	Near Ruu River, South- east Africa . . .	C. C. Bowring.
10 $\frac{1}{2}$	...	Somaliland . . .	W. R. Bindloss.
10 $\frac{1}{8}$	...	South-East Africa . . .	F. Vaughan Kirby.
..	9 $\frac{3}{4}$	... . .	W. W. Ashley.
..	9	Pungwe . . .	Count E. Hoyos.
...	9	Somaliland . . .	Prince Boris Czetwertynski.
...	9	Do. . .	Capt. F. C. Quicke.

**Lower Tusks.**

9 $\frac{1}{2}$	...	Somaliland . . .	J. D. Inverarity.
-9 $\frac{1}{2}$	...	Do. . .	Viscount Edmond de Poncins.



Head of Male Wart-Hog.



Indian Rhinoceros (*Rhinoceros unicornis*)  
from Kuch Behar

**GREAT INDIAN RHINOCEROS (*Rhinoceros unicornis*).**

In addition to being the giant among its Asiatic kindred and possessing but a single horn, this huge rhino is specially characterised by the form of the folds in its hide, and the large tubercles on the fore- and hind-quarters, which look as though the skin had been fastened to the body by means of rivets. A fold before and behind the shoulder marks off one large triangular shield on each side, while another fold before each thigh separates a large rump-shield; the saddle-shaped body-shield being defined by the fold behind the shoulder and the one in front of the thigh, both of which extend across the back. Very characteristic, too, are the great folds which form heavy rings of skin round the neck. Although the tubercles are largest on the fore- and hind-quarters, they also occur on other parts of the body. Height at shoulder from 5 feet 8 inches to at least 6 feet; girth, 105 inches; length, 12 feet 10 inches, of body 11 feet.

## MAHARAJA OF KUCH BEHAR'S SPECIMENS

Height at shoulder . . .	6 ft. $4\frac{1}{4}$ ins.	6 ft. 1 in.	6 ft. $\frac{1}{2}$ in.
Total length . . .	14 ft. 1 in.	13 ft. 2 ins.	13 ft. 10 ins.
Body . . .	11 ft. 11 ins.	11 ft. 2 ins.	11 ft. 8 ins.
Girth behind shoulder . .	119 ins.	112 ins.	
Biggest girth . . .	144 ins.	142 ins.	
Round neck nearest body	90 ins.	84 ins.	
"          "          head	74 ins.	75 ins.	
Horn . . .	16 $\frac{1}{4}$ ins.	13 $\frac{7}{8}$ ins.	

At one time this animal was found over the greater part of the Indian peninsula, as attested by fossil remains, but now it is restricted to Assam; its place farther east in the Sanderbans, Chittagong, and Burma being taken by the smaller *R. sondaicus*.

*Distribution.*—Chiefly the Assam plain at the present day.

Length on front curve.	Circumference.	Weight.	Locality.	Owner.
-24	...	...	?	The late Dr. T. C. Jerdon.
19 $\frac{1}{8}$	22 $\frac{3}{8}$	...	India . . .	British Museum.
-19	18	...	Singpo, Burma . .	Sir C. A. Elliot, Bart.
16 $\frac{3}{4}$	...	...	Belsire, Assam . .	W. C. Sherwill.
♀ 16 $\frac{1}{4}$	...	...	Kuch Behar . . .	Maharaja of Kuch Behar.
♀ 16	...	3 $\frac{1}{2}$ lbs.	Nowgong, Assam . .	L. Fabre Tonnerre.
14 $\frac{1}{4}$	21	...	Assam	Dr. W. P. Y. Bainbrigge.
♀ 14	22 $\frac{7}{8}$	4 $\frac{1}{2}$ lbs.	Nowgong, Assam . .	L. Fabre Tonnerre.
-13 $\frac{7}{8}$	...	...	Kuch Behar . . .	Maharaja of Kuch Behar.
<sup>1</sup> 13	...	...	Do. . .	Do.
13	20 $\frac{1}{2}$	...	Assam . . .	G. A. Dolby.
12 $\frac{3}{4}$	23	...	Do.	H. B. Firman.
12 $\frac{1}{2}$	21 $\frac{5}{8}$	...	Do.	H. C. Holland.
-12 $\frac{1}{2}$	15 $\frac{1}{2}$	...	Kuch Behar . . .	James J. Harrison.
12 $\frac{1}{2}$	21	...	?	J. W. Grieve.
-12	...	...	Bhutan Duars . .	Major-General Alexander A. A. Kinloch.
11	20	...	Kuch Behar . . .	Capt. Hon. W. Lambton.
-10 $\frac{3}{4}$	21 $\frac{3}{4}$	...	Foot of Garro Hills . .	A. O. Hume, C.B.
10 $\frac{1}{2}$	17	...	?	Earl of Dunmore.
10	...	...	Kuch Behar . . .	Duke of Portland.
♀ -8 $\frac{3}{4}$	8	...	Do.	Countess Scheibler.
8 $\frac{1}{8}$	15	...	Assam	Sir Peter Walker, Bart.
8 $\frac{1}{4}$	14 $\frac{7}{8}$	...	Do.	Hugh G. Barclay.
8	17	...	Do. . . . .	Major E. T. Paul.
6 $\frac{1}{2}$	15	...	Tezpore, Assam . . .	A. Y. Thomson.
5 $\frac{1}{2}$	14 $\frac{1}{2}$	...	Kuch Behar . . .	Major Henry Streatfeild.

<sup>1</sup> Height at shoulder, 6 ft. 6 ins.

**JAVAN or LESSER ONE-HORNED RHINOCEROS (*Rhinoceros sondaicus*).**

A less gigantic and smaller-headed species than the last, with the skin divided up into a kind of mosaic pattern, and the fold in front of the shoulder continued right across the body like the two hinder folds. The neck also lacks the large ring-like masses of folded skin. Horn never very large, and generally almost or completely wanting in the female. A female has been measured which stood  $5\frac{1}{2}$  feet at the shoulder, and it is probable that the male stands little less than the great Indian species, although it is of lighter build.

*Distribution*.—The Sanderbans and other parts of Eastern Bengal, to the Terai, Sikim, Assam, and thence through Burma and the Malay Peninsula to Sumatra, Java, and Borneo.

Length on front curve.	Circumference.	Locality.	Owner.
10 $\frac{5}{8}$	19 $\frac{5}{8}$	Java	British Museum.
10 $\frac{5}{8}$	19 $\frac{1}{2}$	Do.	H. Van Son.
8 $\frac{1}{2}$	20	Do.	A. S. Campbell.

**SUMATRAN RHINOCEROS (*Rhinoceros sumatrensis*).**

The smallest of the Asiatic rhinos, and the only one with two horns; differing, however, from the African members of the genus by the folds in the skin and the presence of teeth in the front of the jaws. Only the fold behind the shoulders is continued across the back, and the brown or black skin is rough, granular, and more or less hairy. Height at shoulder from about 4 feet to  $4\frac{1}{2}$  feet; weight about 2000 lbs.

*Distribution*.—From Assam (where the species is very rare) to Siam, the Malay Peninsula, Sumatra, and Borneo. Specimens from Chittagong are remarkable for the excessive development of the hair, which is long and very thick; they may indicate that the Assamese form is a distinct local race (*R. sumatrensis lasiotis*).

Length on front curve.	Circumference.	Owner.
32 $\frac{1}{8}$	17 $\frac{3}{8}$	British Museum.
27 $\frac{1}{8}$	17 $\frac{7}{8}$	Do.





Common African Rhinoceros Skulls and Horns, from A. H. Neumann's specimens.  
The biggest horn of the three measures 40 inches on front curve.

#### COMMON AFRICAN RHINOCEROS (*Rhinoceros bicornis*).

*Aurarisse* of the Abyssinians.

*Chipamberi* of the Lower Zambesi  
natives.

*Gurhu* of the Danakil tribes.

*Favu* of the Swahilis.

*Sipejana* of the Swazis and Matonga.

*Upelepe* of the Basutos.

*Upejana* of the Matabeles and Zulus.

*Weel* of the Somalis.

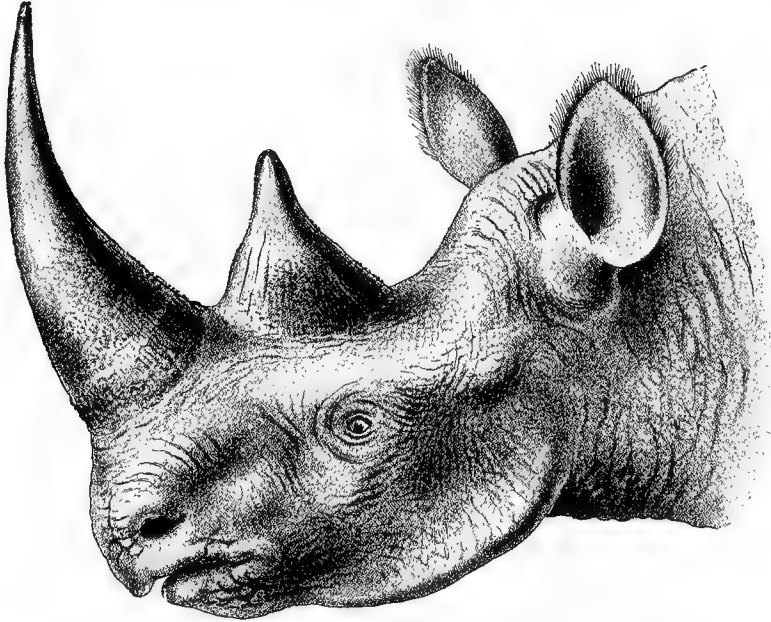
*Zwart Rhinoster* of the Boers.

The African rhinoceroses are two-horned animals, readily distinguished from their Asiatic relatives by the absence of the folds of skin on the body which form such a characteristic feature of the latter ; as they also are by the lack of front teeth in both the upper and lower jaws. The hide, too, is almost completely naked, although there are some bristly hairs on the margins of the ears and the tip of the tail. Average height at shoulder, 5 feet.

Perhaps the most distinctive external feature of the black rhinoceros, as the present species is commonly called, is to be found in the prehensile tip to the upper lip, which is rounded and not very wide in front. Other points of distinction are, however, shown by the form of the horns and ears and the position of the eyes ; while in bodily size this animal is also considerably inferior to the next. If anatomical

characters be taken into account, the black rhinoceros is also well characterised by the comparative shortness of its skull, and the form and structure of the molar teeth, which are adapted for a diet of twigs and leaves.

Captain Edgar G. Harrison, writing in the *Field*, December 25, 1897, records the measurements of a five-horned Rhinoceros shot by him in East Africa as follows:—



Head of Common African Rhinoceros.

*First Horn.*—Counting from snout, measurement  $14\frac{3}{4}$  in.; is a normal front horn curving backwards.

*Second Horn.*— $15\frac{1}{4}$  in., curving forwards instead of backwards or being straight, as is usual, and leaning considerably over to the off-side.

*Third Horn.*— $11\frac{1}{4}$  in. long and  $5\frac{1}{2}$  in. wide half-way between base and apex; is flat and perpendicular, and, though a distinct horn, grows out of the off-side of the base of No. 2.

*Fourth Horn.*—Is a stumpy, abortive horn, 9 in. long, growing partly from the base of No. 3, but quite separate and inclining slightly backwards.

*Fifth Horn.*—A distinct horn,  $9\frac{3}{4}$  in. long, with its own base separated about 3 in. from No. 4.

*Distribution.*—From Abyssinia and Somaliland through East and Central Africa, in suitable localities, to the Cape. Now rare to the south of the Zambesi, and probably more abundant in the districts between the interior of Somaliland and Lake Rudolph than anywhere else. Although more alert and active than Burchell's rhinoceros, and thus a more dangerous animal, this species is by no means difficult to kill with modern weapons; and in the old days hunters frequently shot half-a-dozen in a single evening as they came to drink at a pool. In spite of its wide distribution, it has not been found possible to split up the species into local races; although this may perhaps be due to the want of sufficient specimens for comparison.

Length on outside curve.		Circumference.		Locality.	Owner.
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.		
44	...	...	...	?	The late F. Holmwood.
43	...	21½	...	?	A. Beit.
41½	10	20½	16½	Zululand . . .	Lieut.-Col. Hon. W. Coke.
-41½	...	22½	...	Orange River . .	Major-Gen. Sir William Crossman, K.C.M.G.
-41	...	...	...	?	Carl Hagenbeck.
41	...	...	...	East Africa . . .	The late F. Holmwood.
-40	...	22	...	Do. . . .	Berlin Museum.
40	14½	18½	20½	Mt. Kenia, East Central Africa	A. H. Neumann.
-39½	...	21½	...	South Africa . . .	J. Lamont.
38½	...	21	...	?	Hon. Walter Rothschild.
38½	...	19	...	Masailand . . .	Sir John Kirk, K.C.B.
-38	11	24	21½	South Africa . . .	Earl of Dartmouth.
-36	...	...	...	East Africa . . .	Sir Bartle Frere, Bart.
-35½	...	18	...	?	H. Murray.
♀ 33½	...	17½	...	Matabeleland . . .	W. Van Ness.
-32½	21	19	15½	Portuguese Northern Zambesia	F. Vaughan Kirby.
-32	11½	19½	19½	Athi Plains, East Africa	Count Scheibler.
31	...	18	...	East Africa . . .	R. P. Carroll.
31	19½	16	16½	Do. . . .	H. C. V. Hunter.
30½	...	21½	...	Zambesi Valley . .	Sir John Kirk, K.C.B.

COMMON AFRICAN RHINOCEROS (*Rhinoceros bicornis*)—*continued*.

Length on outside curve.		Circumference.		Locality.	Owner.
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.		
-29½	14½	...	...	Somaliland . .	A. H. Straker.
29	...	19	...	East Africa . .	Prince Boris Czetwertynski.
28½	...	18	...	South Africa . .	C. D. Rudd.
28½	8¾	18½	...	Do. .	F. C. Selous.
-27½	12	...	...	Lake Njire . .	T. E. Buckley.
27¼	10	21	17	Masailand . .	Capt. R. A. J. Montgomerie, C.B., R.N.
27	...	20½	...	East Africa . .	E. Gedge.
27	16½	17¾	17½	Do. .	Sir Robert Harvey, Bart.
27	12	...	...	Do. .	Sir John Willoughby, Bart.
26¾	13¼	22	...	? .	Sir Edmund G. Loder, Bart.
26½	10½	19½	15	East Africa . .	Henry Charrington.
♀ 25¾	17	16	15	East shore of Lake Rudolph . .	A. H. Neumann.
25¾	9½	17¾	...	East Africa . .	F. J. Jackson, C.B.
♀ 24½	12	16	17½	Masailand . .	Capt. R. A. J. Montgomerie, C.B., R.N.
♀ 24	...	10¼	...	Kilimanjaro . .	T. E. Buckley.
22¾	...	19¼	...	East Africa . .	W. Astor Chanler.
22½	14½	17	16½	Somaliland . .	Julius Jeppe.
22¼	10	22¾	19	Do. .	Sir H. D. Tichborne, Bart.
-22	12.3	20.8	19.2	East Africa . .	Prince Henry of Liechtenstein.
21¾	11¾	19	19	Somaliland . .	J. Kenneth Foster.
21¾	17	14	16	Abyssinia . .	British Museum.
-20½	9¼	21¾	19¾	Somaliland . .	Count E. Hoyos.
20	11½	21½	18	Do. .	J. Byng Paget.
20	6¾	20½	19½	Do. .	Major H. G. C. Swayne.
-20	8¼	23½	21¾	Do. .	Count E. Hoyos.
-19½	8	...	...	Do. .	Capt. M. M'Neill.
-19¼	18½	8½	17½	Sabi Flats . .	Dr. Percy Rendall.
-19¼	6½	15½	14	E. C. Africa . .	James J. Harrison.
-19	22	18¼	20	B. E. Africa . .	Count Scheibler.

COMMON AFRICAN RHINOCEROS (*Rhinoceros bicornis*)—*continued*.

Length on outside curve.		Circumference.		Locality.	Owner.
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.		
-19	8	14	...	Somaliland	Count Grudzinski.
18 $\frac{3}{4}$	10 $\frac{1}{2}$	18 $\frac{1}{2}$	16 $\frac{1}{2}$	Do.	A. S. Trevor.
-18 $\frac{1}{2}$	7	22	20 $\frac{1}{2}$	Do.	P. H. G. Powell-Cotton.
-18 $\frac{1}{2}$	...	21 $\frac{1}{2}$	...	Do.	Count T. Zamoyski.
18	12 $\frac{1}{2}$	20	22	East Africa	Lord Delamere.
18	12	20	18	South Africa	Durban Museum.
18	7 $\frac{1}{2}$	21	17	Somaliland	R. Wahrmann.
17 $\frac{1}{2}$	7 $\frac{3}{4}$	19 $\frac{1}{2}$	19 $\frac{7}{8}$	Abyssinia	British Museum.
17 $\frac{1}{2}$	9 $\frac{3}{4}$	20	17 $\frac{1}{2}$	Somaliland	Prince Nicolas Ghika.
-17 $\frac{1}{2}$	12 $\frac{3}{4}$	17	18 $\frac{1}{2}$	Do.	W. W. Ashley.
17	6 $\frac{1}{2}$	21	17	Do.	Prince Demeter Ghika.
17	13	16 $\frac{1}{2}$	18 $\frac{1}{2}$	Do.	J. Bennett-Stanford.
16 $\frac{3}{4}$	...	15 $\frac{5}{8}$	...	Sudan	Col. Ralph Vivian.
-16 $\frac{1}{2}$	7 $\frac{1}{2}$	17 $\frac{1}{2}$	15 $\frac{1}{2}$	Somaliland	C. V. A. Peel.
16 $\frac{1}{2}$	8	20	18 $\frac{1}{2}$	Do.	Count J. de Bylands.
-♀ 16	...	...	...	Do.	Capt. M. M'Neill.
16	9 $\frac{1}{2}$	14 $\frac{3}{4}$	16	Do.	Major V. M. Stockley.
-15 $\frac{3}{4}$	6	18	15	Do.	A. Leslie Renton.
-15 $\frac{3}{4}$	8	20	19	Do.	Count J. Potocki.
-15	11 $\frac{1}{2}$	15 $\frac{1}{2}$	16 $\frac{1}{2}$	Athi Plains, East Africa	Countess Scheibler.
14 $\frac{1}{2}$	6 $\frac{1}{2}$	16	...	Somaliland	P. B. Vander-Byl.
11 $\frac{1}{2}$	5 $\frac{1}{2}$	16 $\frac{1}{2}$	15 $\frac{3}{4}$	Do.	Col. Arthur Paget.
10	6 + 3	(3 horns)	...	East Africa	Sir John Willoughby, Bart.



Front Horns of Burchell's Rhinoceros.

From specimens in the collection of the late Roualeyn Gordon Cumming, in the possession of Col. W. Gordon Cumming.

**BURCHELL'S RHINOCEROS** (*Rhinoceros simus*).

Next to the Indian elephant this is the largest mammal that has trodden the earth in modern times ; and its practical extermination cannot fail to be a matter of lasting regret. Its huge bulk, bluntly truncate muzzle, which has no prehensile tip, the great length of the skull, and the enormous front horn, with its expanded base, form the most striking external characteristics of this species. And on looking at the skull it will be found that the molar teeth are of quite a different type of structure from those of the preceding species ; being, in fact, adapted for chewing grass. In walking, the animal carried its head low, so that in examples in which the front horn bends forward, its tip became worn by being pushed along the ground. It is difficult to surmise the reason for the application of the name "white rhinoceros" to this species, unless, indeed, it be that Cape specimens were lighter coloured than any seen in the districts to the north.

*Distribution*.—South and South-East Africa, in suitable localities, as far north as the Zambesi. Exterminated early in the century to the south of the Orange River ; and now represented at the most by a few survivors in North-East Mashonaland, and possibly by others in the reedy swamps at the junction of the Black and White Umvolosy rivers. Between the Zambesi and Orange rivers the species was abundant less than half a century ago ; Andersson alone having killed sixty in the course of a few months. Till a few years ago this rhinoceros was unrepresented by adult skins or skeletons in any British Museum ; and it is to the credit of Messrs. Coryndon, Eyre and Varndell that complete examples were secured before it became too late.

North of the Zambesi there exists a rhinoceros (*R. holmwoodi*) at present known only by single horns, which appears to be a near ally of this species, although it was at first regarded as a variety of the common rhinoceros.

Length on outside curve.		Circumference.		Locality.	Owner.
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.		
—62½	...	22½	...	South Africa . .	Col. W. Gordon Cumming.
56½	...	23½ about	...	Do. . .	British Museum.
—52½	...	21½	...	Do. . .	Col. W. Gordon Cumming.
44	...	20	...	?	British Museum.
43¾	...	23¾	...	South Africa . .	A. Beit.

BURCHELL'S RHINOCEROS (*Rhinoceros simus*)—*continued*.

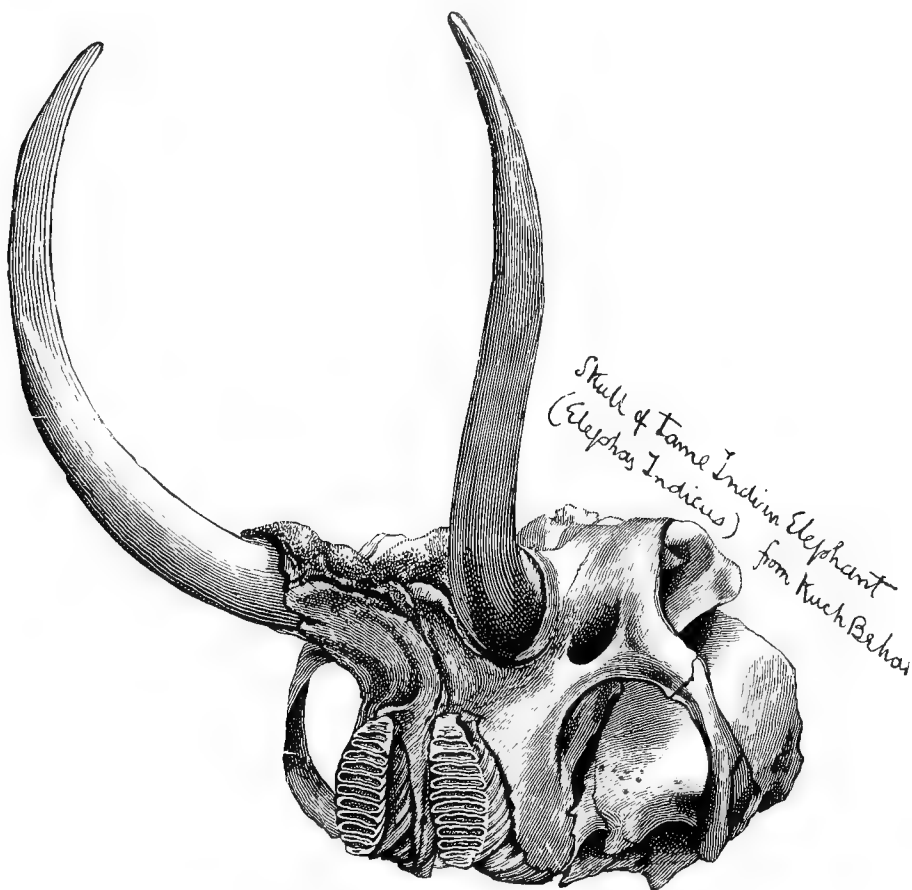
Length on outside curve.		Circumference.		Locality.	Owner.
Front Horn.	Rear Horn.	Front Horn.	Rear Horn.		
42 $\frac{3}{4}$	...	...	25 $\frac{5}{8}$	Limpopo, S. Africa.	The late W. C. Oswell.
-41	...	...	...	South Africa . .	J. W. Fitzherbert.
40 $\frac{3}{4}$	...	29 $\frac{3}{4}$	...	Do. . .	Sir Edmund G. Loder, Bart.
-40 $\frac{1}{2}$	...	22 $\frac{1}{2}$	...	Do. . .	Do.
40	...	15 $\frac{3}{4}$	...	Do. . .	British Museum.
-39	...	...	...	?	A. Ohlsson.
♀ 38 $\frac{5}{8}$	...	24 $\frac{1}{2}$	...	?	The late W. C. Oswell.
38 $\frac{1}{4}$	...	22 $\frac{1}{4}$	...	?	J. B. Taylor.
37 $\frac{3}{8}$	17 $\frac{7}{8}$	27 $\frac{1}{8}$	...	Mashonaland .	F. C. Selous.
37 $\frac{1}{4}$	...	24	...	South Africa . .	British Museum.
-36 $\frac{3}{4}$	...	20 $\frac{1}{2}$	...	?	Berlin Museum.
36	...	28 $\frac{1}{2}$	...	Mashonaland . .	C. D. Rudd.
36	...	25 lbs.	...	?	Rev. V. R. Carter.
35 $\frac{1}{2}$ (mounted specimen)	7 $\frac{5}{8}$	26	21	Mount Domo, Ma- shonaland	Cecil Rhodes, Cape Town Museum.
-33 $\frac{1}{2}$	...	23	...	?	Julius Jeppe.
33	...	25 $\frac{1}{2}$	...	?	Duke of Westminster.
33	13 $\frac{1}{8}$	23 $\frac{1}{4}$	...	Mashonaland . .	F. C. Selous.
33	...	25 $\frac{1}{2}$	...	?	Duke of Westminster.
32 $\frac{3}{4}$	...	27 $\frac{1}{2}$	...	?	The late J. S. Jameson.
♀ 32 $\frac{1}{4}$	...	27	...	Lake Ngami . .	The late W. C. Oswell.
31 $\frac{1}{8}$	...	19 $\frac{1}{2}$	...	?	Mr. Justice Hopley.
31	...	24	...	Zululand. . .	Lieut.-Col. Hon. W. Coke.
-30 $\frac{3}{4}$	...	25 $\frac{1}{4}$	...	South Africa . .	Col. H. B. H. Blundell, C.B.
♀ 29 $\frac{3}{4}$	5 $\frac{1}{2}$	23	20 $\frac{1}{2}$	Zululand . .	Julius Jeppe, Pretoria Museum.
27 $\frac{5}{8}$	12	22 $\frac{3}{4}$	18 $\frac{1}{4}$	Do. . .	Julius Jeppe.
27	...	20 $\frac{1}{2}$	...	Do. . .	Dr. W. P. Y. Bainbrigge.
27	11 $\frac{3}{4}$	30 $\frac{3}{8}$	25	Do. . .	Sir Edmund G. Loder, Bart.
23 $\frac{1}{8}$	...	26	...	?	Mr. Justice Hopley.
22 $\frac{1}{2}$ (mounted specimen)	7 $\frac{1}{2}$	26 $\frac{1}{4}$	...	Mashonaland .	Hon. Walter Rothschild.
...	13	...	19 $\frac{1}{2}$	?	Mr. Justice Hopley.
20 $\frac{3}{4}$ (mounted specimen)	7	28 $\frac{3}{4}$	...	Mashonaland . .	British Museum.
20	6	25 $\frac{1}{2}$	18 $\frac{1}{2}$	Zululand . .	H.R.H. le Duc d'Orléans.





*From a Photograph by Mr. Lales, Reading.*

Skull and Horns of Burchell's Rhinoceros, Mashonaland, 1880.  
Shot by F. C. Selous.



### INDIAN ELEPHANT (*Elephas indicus*).

In general a decidedly smaller animal, the Indian elephant differs from its African relative not only in external form, but also in the structure of its molar teeth, which are composed of a greater number of much thinner vertical plates. The females, as a rule, have only very small tusks, not projecting beyond the jaw; and in some cases those of the males are equally poorly developed. Five nails are usually present on the fore-feet, and four on the hinder ones. Externally, the most characteristic distinction is the comparatively small size of the ears; next to which comes the presence of a finger-like process on the front edge only of the tip of the trunk; the African species having one in front and a second behind. The skin is nearly smooth; and the

bristles on the tail are confined to the front and back edges for some distance above the tip. Other noticeable points are the comparative flatness of the forehead, and the regular convex form of the back. Although males do not generally exceed 9, and females 8 feet in height, specimens have been killed measuring 9 feet 10 inches, 10 feet 1 inch, and 10 feet  $7\frac{1}{2}$  inches, while one is stated to have reached 11 feet, and there is evidence of still larger individuals, perhaps of 12 feet.

*Distribution.*—The forest districts of India, Ceylon, Assam, Burma, Siam, Cochin China, Sumatra, and Borneo. The Sumatran elephant has been regarded as a distinct species, and it may possibly form a peculiar local race.

Height at Shoulder.		Locality.			Owner.
ft.	in.				
-11	0	Mysore	.	.	Viscount Powerscourt.
-10	4	Gurhwal, N.W.P.	.	.	Col. J. E. Campbell.
-10	1	Ceylon	.	.	James J. Harrison.
-10	1		?		Major-General Alexander A. A. Kinloch.
-9	7	Mysore	.	.	The late Col. G. P. Sanderson.
-9	4	Ceylon	.	.	Count Scheibler.

### Tusks.

Length out- side curve.		Greatest cir- cumference.	Weight.	Locality.		Owner.
ft.	ins.	ins.	lbs.			
-8	9 R	17 $\frac{1}{4}$	81	Assam	.	Presented to the late Lord Lytton by Sir Steuart Bayley, K.C.S.I. Measured by A. O. Hume, C.B.
-8	2 L	...	80.2	Do.	.	Do.
...	...	...	100	Do.	.	The late Charles Redde, <i>P.Z.S.</i> 1886, p. 176.
8	0	16 $\frac{7}{8}$	90	South India	.	Sir Victor Brooke's Collection.
1 <sup>7</sup>	3 $\frac{3}{8}$	17 $\frac{1}{2}$	102	Burma	.	} Marquis of Waterford.
7	3 $\frac{1}{4}$	17 $\frac{1}{8}$	97 $\frac{1}{2}$	Do.	.	
6	10	17 $\frac{1}{2}$	65 $\frac{5}{8}$	India	.	J. D. Goldingham, Bethnal Green Museum.
-6	8	...	77 $\frac{1}{4}$	Madura District, South India	.	Col. G. M. Payne.
6	7 $\frac{1}{2}$	14 $\frac{3}{8}$	52 $\frac{1}{2}$	Mysore	.	Viscount Powerscourt.
-6	7	12 $\frac{1}{2}$	46 $\frac{1}{2}$	Yala, S. Provinces, Ceylon	.	Capt. R. J. Marker.
-6	3 $\frac{1}{2}$	...	73 $\frac{1}{4}$	Madura District	.	Col. G. M. Payne.

<sup>1</sup> The tusks of the sacred white elephant which came out of King Thebaw's Palace, Burma.

INDIAN ELEPHANT (*Elephas indicus*). Tusks—*continued*.

Length out- side curve. ft. ins.	Greatest cir- cumference. ins.	Weight. lbs.	Locality.	Owner.
6 0	...	50	Madras . . .	J. Fortune.
-5 10	...	...	Borneo . . .	C. M. D. Stewart.
-5 3	15	42	Ceylon . . .	W. S. Murray.
-5 1½	15	35	Travancore . .	Hon. E. Stonor.
-5 0	...	...	Burma . . .	T. Mumford.
4 10	15½	32½	Travancore .	Hon. E. Stonor.
-4 7	13	...	Do. . .	J. D. Rees.
4 6	15	...	Do. . .	Lord Wenlock, G.C.I.E.
4 4½	15	...	Do. . .	Do
1 3 11¾	12½	29¾	Yala, S. Provinces, Ceylon	Capt. R. J. Marker.

## MEASUREMENTS PROTRUDING FROM SKULL.

3 11	...	...	India . . .	British Museum.
3 6½	...	...	Do. . .	Do.
3 3	...	...	Do. . .	Do.
2 5½	15	...	Do. . .	Do.
2 0½	...	...	Mysore . . .	Viscount Powerscourt.
1 6	4¾	...	Sumatra . .	British Museum.

<sup>1</sup> Broken end, pair to 6 ft. 7 ins.

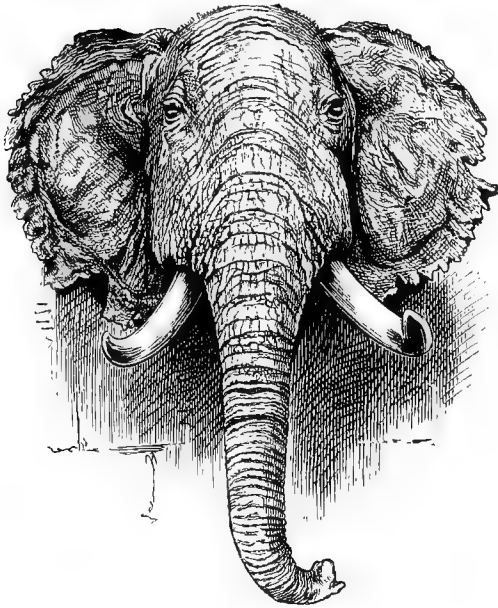
## Feet.

Circumference at base.	Width at bottom, back to front.	Locality.	Owner.
-67½	...	Measurement taken from living elephant under charge of Lieut.-Col. G. W. Hanson.	
62½	...	South Arcot District .	J. Fortune.
61	20	Travancore . . .	D. M. Lumsden.
60	18	Mysore . . .	Viscount Powerscourt.
-60	...	Gurhwal . . .	B. B. Osmaston.
-60½	...	India . . .	Major-Gen. Alexander A. A. Kinloch.
-59½	...	Gurhwal . . .	B. B. Osmaston.
58½	18	Travancore . . .	H. L. Cottingham.

INDIAN ELEPHANT (*Elephas indicus*). Feet—*continued*.

Circumference at base.	Width at bottom, back to front.	Locality.	Owner.
58	18	Travancore	Hon. E. Stonor.
57 $\frac{3}{4}$	19	Assam . . .	H. C. Holland.
<sup>1</sup> 57 $\frac{1}{2}$	17	Ceylon . . .	R. Gordon Smith.
57 $\frac{1}{2}$	18 $\frac{1}{2}$	Assam . . .	D. D. F. Hosack.
-56	...	Ceylon . . .	E. J. Brooke.
56	17	Do. . . .	G. M. Norrie.
-56	18	Do. . . .	Sir Peter Walker, Bart.
-56	17 $\frac{1}{2}$	Do. . . .	T. H. Mann.
55 $\frac{1}{2}$	18 $\frac{1}{2}$	Travancore . . .	Lord Wenlock, G.C.I.E.
55	17 $\frac{3}{4}$	Ceylon . . .	Rowland Ward.
<sup>2</sup> 55	17	Gurhwal . . .	B. B. Osmaston.
55	17	N.W. Provinces . . .	Capt. G. O. Bigge.
54 $\frac{3}{4}$	18	Pyinmana Tai . . .	H. Partridge.
54 $\frac{1}{2}$	17 $\frac{1}{2}$	Ceylon . . .	H. Storey.
53 $\frac{3}{4}$	18 $\frac{1}{4}$	Do. . . .	W. H. Walker.
52 $\frac{1}{2}$	17	Do. . . .	H. E. Lindsay.
-50	16 $\frac{1}{2}$	Do. . . .	James J. Harrison.
49	15	Do. . . .	Capt. R. J. Marker.
48 $\frac{1}{2}$	16	Sumatra . . .	R. P. Carroll.
46 $\frac{1}{2}$	15	?	G. A. Dolby.
45 $\frac{1}{2}$	15 $\frac{1}{2}$	Mysore . . .	W. G. Deeds.

<sup>1</sup> Measurements 54 ins.  $\times$  17 ins. when dried.<sup>2</sup> Measurements 59 $\frac{1}{2}$  when shot.



Head of African Elephant.

**AFRICAN ELEPHANT** (*Elephas africanus*).*Arba* of the Gallas.*Tlo* in the Barotse country.*Dakana* of the Abyssinians (Danakil).*Thlo* in the Lake Ngami country.*Marodi* of the Somalis.*Zahon* of the Abyssinians.*Zemba* of the Swahilis.*Njovu* in the Chilala and Chibisa countries.

The African elephant, although still abundant in many regions of Central Africa, in the southern part of the Continent is rapidly approaching extinction. A very remarkable exception to this melancholy process of extermination is, however, to be found in the south and east of Cape Colony, where, since the year 1830, wild elephants have been systematically preserved by Government. Strong troops of these protected elephants still roam the dense and impenetrable jungles of the Addo Bush and the Knysna and Zitzikamma forests. A permit to shoot one of these elephants—costing £20—is to be obtained at Cape Town. Farther inland the ivory-hunters have for a generation past been so actively employed, that, despite the vast numbers of these

great mammals which forty or fifty years ago thronged the interior from the Orange River northwards, but a few troops are now left south of the Zambesi. In all Khama's country of Bamangwato, for instance, where Gordon Cumming, Oswell, and others shot most of their elephants, only one solitary troop remains!

ft.	in.		Owner.
10	7	"Jumbo" . . .	Barnum and Bailey.

Male shot by James J. Harrison in the Chiperoni Forest,  
Mozambique Province.

Trunk-tip to crown . . .	ft. in.	Girth of forearm . . . . .	ft. in.
Crown to tail-tip . . .	9 9	fore-foot . . . . .	4 6
Vertical standing height .	17 3	„ The tusks were not very large.	4 11
	11 1		

Estimated height of a huge tuskless male shot by Mr. F. Vaughan Kirby in the Chiringoma Forest, 10 feet 8 or 9 inches, circumference of forefoot 60 inches.

Male shot in Portuguese East Africa by F. Vaughan Kirby.

	ft.	in.			ft.	in.
Length from trunk-tip to crown	.	9	7	Greatest height above ground as it		
"    crown to tail-tip	.	16	9	lay dead	.	5
Vertical shoulder height	.	10	6½	Right tusk on the curve	.	5
Perpendicular diameter of left ear				Left	.	5
over the flap	.	5	9	Greatest circumference	.	11½
Girth of left fore-foot	.	4	10	Weight, right 77 lbs., left 81½ lbs.		19

Mr. A. H. Neumann, in his *Elephant Hunting in East Equatorial Africa*, records the following among other dimensions:—

Male.	Height at shoulder in straight line.		Length from root of tail to eye, in straight line.		Girth of forearm below elbow.	Circumference of fore-foot.	Long diameter of hind-foot.	Girth of thickest tusk just outside lip.				
	ft.	in.	ft.	in.	ft.	in.	ft.	in.				
Shot at El Bogoi (foot of Lorigi Mountains), 30th Sept. 1894.	10	8 or 9 (at least)	12	6	4	6	4	8½	1	9	1	6½
Shot at Bumi (Lake Rudolph), 29th Dec. 1895.	10	5 (at least)	12	6	...		4	8½	...		1	6
Do. do.	10	9 (at least)	12	8 or 9	...		5	0	1	10	1	9¼
Shot at Janjai (near Kenia), 13th May 1894.	10	6 (at least)	...		...		...		...		...	

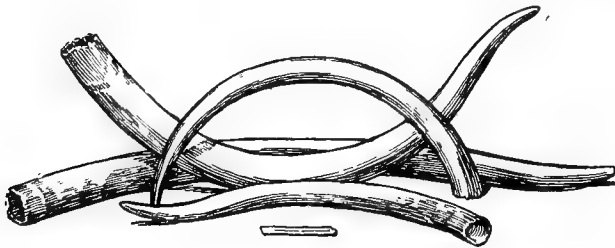
The three first were old bulls of the type found, as a rule, in separate herds. The last was a "herd bull" or breeding male.

**AFRICAN ELEPHANT** (*Elephas africanus*)—*continued*.

Height at shoulder in straight line.		Total length (trunk to end of tail).		Girth of belly.		Girth of fore-foot.		Locality.	Owner.
ft.	in.	ft.	in.	ft.	in.	ft.	in.		
10	6	...	...	...	...	...	...	S.E. Africa . .	F. C. Selous.
10	3½	...	...	...	...	...	...	E. C. Africa . .	James J. Harrison.
-10	3	21	0	18	0	5	1	Nyasaland . .	Sir John Kirk, K.C.B.
-10	0	23	5	16	6	...	...	South Africa . .	H.R.H. the Duke of Saxe- Coburg and Gotha.
-9	7½	...	...	...	...	4	6½ (dried)	Somaliland . .	Viscount Edmond de Poncins.
-9	6½	...	...	...	...	...	...	Do. . .	Capt. M. M'Neill.
-9	3	24	6	...	...	...	...	? . .	Count E. Hoyos.
-9	2	...	...	...	...	...	...	Ruwenzori, E. C. Africa	Capt. C. Ashburnham.
-8	0	...	...	...	...	3	8½	? . .	Count Scheibler.

**Tusks.**

Length (outside curve).		Greatest circumference.	Weight.	Locality.			Owner.
ft.	in.	in.	lbs.				
9	5	22½	184	Africa	.	.	Sir Edmund G. Loder, Bart.
...	...	...	172	Do.	.	.	The late Sir Samuel Baker.



Specimens of A. H. Neumann's large Elephant Tusks.

9	4	20½	160	E. Africa . .	Sir John Kirk, K.C.B.
9 (tip broken)	4	18	110	Do. . . .	Duke of Westminster.
-9	4	...	151	Elgayu, E. Africa	F. J. Jackson, C.B.
-9	3	...	129	? . . .	Do.
9	0	18½	116	N. of Lake Rudolph, E. C. Africa	A. H. Neumann.
9	0	21	150	Africa . . .	Sir Edmund G. Loder, Bart.
9	0	18½	116	N. of Lake Rudolph	A. H. Neumann.



**AFRICAN ELEPHANT** (*Elephas africanus*). **Tusks**—*continued*.

Length (outside curve).		Greatest circumference.	Weight.	Locality.	Owner.
ft.	in.	in.	lbs.		
—8	11	18 $\frac{5}{8}$	...	Galla Country . .	Measured by Viscount Edmond de Poncins.
8	11	17 $\frac{1}{4}$	90	?	H.M. the Queen, Bethnal Green Museum.
8	10	18	105	East Africa . .	Lord Delamere.
—8	8	18 $\frac{1}{2}$	...	?	Sir H. B. Meux, Bart.



*From a photograph by Mr. J. R. W. Pigott.*

The Big Tusk (8 ft. 7 $\frac{1}{2}$  in., 165 lbs.) presented by the Officers serving in British East Africa to H.R.H. the Duke of York on the Occasion of his Marriage.

8	7 $\frac{1}{2}$	22 $\frac{3}{4}$	165	East Africa . .	H.R.H. the Duke of York.
8	6	18 $\frac{1}{4}$	100	Do. . .	Lord Delamere.
8	3	18 $\frac{3}{4}$	81 $\frac{1}{2}$	Do. . .	T. W. Greenfield.
8	2	18 $\frac{3}{4}$	80	Do. . .	Do.
8	1	20 $\frac{1}{4}$	114	N. of Lake Rudolph, E. C. Africa	A. H. Neumann.

AFRICAN ELEPHANT (*Elephas africanus*). Tusks—*continued*.

Length (outside curve).		Greatest circumference.	Weight.	Locality.		Owner.
ft.	in.	in.	lbs.			
7	10	19 $\frac{5}{8}$	107	East Africa		A. H. Neumann.
7	8 $\frac{1}{2}$	23 $\frac{1}{2}$	160	Africa	.	Chalmers, Guthrie, and Co.
-7	8	...	108	Galla Country	.	Dr. Donaldson Smith.
7	6	...	100	Do.		Do.
7	6	17	...	?		Duke of Westminster.
7	6 $\frac{1}{2}$	21 $\frac{1}{4}$	...	South Africa	.	The late W. C. Oswell.
7	3 $\frac{1}{4}$	19 $\frac{1}{2}$	102	East Africa	.	Col. F. D. Lugard, C.B., D.S.O.
7	0 $\frac{1}{8}$	17 $\frac{1}{8}$	60 (about)	Kilimanjaro, East Africa		F. J. Jackson, C.B.
7	0	18 (about)	...	South Africa	.	Cetywayo's peace-offering in 1879 to Lord Chelmsford.
6	9	17 $\frac{1}{4}$	...	Kilimanjaro		F. J. Jackson, C.B.
6	8	17	74	?		Julius Jeppe.
6	7	16 $\frac{1}{8}$	...	South-East Africa	.	F. C. Selous.
♀ 6	5 $\frac{1}{2}$	12 $\frac{1}{2}$	...	N. of Lake Rudolph, E. C. Africa		A. H. Neumann.
6	4 $\frac{1}{2}$	17 $\frac{1}{4}$	...	East Central Africa	.	H. S. H. Cavendish.
6 (spiral tusk)	I	7 $\frac{1}{2}$	...	Masailand	.	Sir John Kirk, K.C.B.
-6	I	18	...	Somaliland	.	Sir H. B. Meux, Bart.
5	10	16 $\frac{1}{8}$	...	White Nile	.	The late Sir Samuel Baker, British Museum.
-5	9	18	70	Nyasaland	.	S. Pulley.
5	4	14 $\frac{1}{2}$	...	East Central Africa	.	G. E. Smith.
5	4	16 $\frac{1}{2}$	78	Ruwenzori, Africa	E. C.	Capt. C. Ashburnham.
4	11	15	26	Somaliland	.	A. H. Straker.
4	11	16	...	Ruwenzori, Africa	E. C.	Capt. C. Ashburnham.
4	9 $\frac{1}{2}$	14 $\frac{3}{8}$	33 $\frac{1}{2}$	Somaliland	.	E. W. S. Brooke.
4	8 $\frac{1}{4}$	13 $\frac{1}{2}$	...	Do.	.	Sir Edmund G. Loder, Bart.
4	5	12 $\frac{1}{2}$	...	Do.	.	Lord Delamere.
4	5	10 $\frac{1}{2}$	20	Do.	.	P. R. Denny.
4	5	10	...	East Africa	.	W. Astor Chanler.
4	4	13 $\frac{3}{4}$	26	Somaliland	.	Capt. J. M'Call Maxwell.
4	I	14 $\frac{1}{2}$	60	Do.	.	Digby Davies.

AFRICAN ELEPHANT (*Elephas africanus*). Tusks—*continued*.

Length (outside curve).		Greatest circumference.	Weight.	Locality.		Owner.
ft.	in.	in.	lbs.			
-4	1	13 $\frac{1}{2}$	15 $\frac{3}{4}$	Somaliland	.	Capt. M. M'Neill.
4	8 $\frac{1}{8}$	11	19 $\frac{3}{4}$	Do.	.	P. R. Denny.
-3	8 $\frac{1}{8}$	14 $\frac{5}{8}$	16 $\frac{5}{8}$	Danakil	.	Viscount Edmond de Poncins.
-3	4 $\frac{1}{8}$	14 $\frac{5}{8}$	16 $\frac{1}{8}$	Do.	.	Do.
-2	10 $\frac{1}{4}$	7 $\frac{3}{4}$	6 $\frac{5}{16}$	Do.	.	Do.
-2	10	7 $\frac{3}{4}$	...	Somaliland	.	Dr. Donaldson Smith.
-2	10	...	...	Do.	.	James J. Harrison.

## MEASUREMENTS PROTRUDING FROM SKULL.

-4	8	...	...	Somaliland	.	Capt. M. S. Wellby.
-4	1	16 $\frac{1}{4}$	...	?		Julius Jeppe.
-3	11	16	...	?		Do.
3	5 $\frac{7}{8}$	15 $\frac{1}{8}$	...	South Africa	.	The late J. S. Jameson.

## Feet.

Circumference at base.	Width at bottom, back to front.	Locality.		Owner.
-60 $\frac{3}{4}$	...	Somaliland	.	Capt. M. S. Wellby.
58 $\frac{1}{2}$	19	E. C. Africa	.	H. S. H. Cavendish.
56	19	Somaliland	.	The late Col. E. Carrington.
54	18 $\frac{1}{2}$	Do.	.	Major J. S. Ashby.
54	...	Kilimanjaro	.	F. J. Jackson, C.B.
-54	17	Somaliland	.	Count E. Hoyos.
53 $\frac{7}{8}$	18 $\frac{1}{2}$	South-East Africa	.	The late J. S. Jameson.
53	17	Somaliland	.	Capt. J. M'Call Maxwell.
52 $\frac{1}{2}$	19	Do.	.	Major J. S. Ashby.
52 $\frac{1}{2}$	17	South Africa	.	Rowland Ward.
-51	...	Galla Country	.	Viscount Edmond de Poncins.
50	17	South Africa	.	F. C. Selous.
49 $\frac{1}{2}$	17 $\frac{1}{4}$	Do.	.	Do.

**AFRICAN ELEPHANT (*Elephas africanus*). Feet—continued.**

Circumference at base.	Width at bottom, back to front.	Locality.	Owner.
49 $\frac{1}{2}$	...	East Central Africa	James J. Harrison.
49 $\frac{1}{2}$	17	Rhodesia . . .	W. W. Ashley.
49 $\frac{1}{2}$	17	Masailand . . .	Col. F. D. Lugard, C.B., D.S.O.
49 $\frac{1}{2}$	16 $\frac{1}{2}$	East Africa . . .	W. Astor Chanler.
48 $\frac{3}{8}$	16 $\frac{1}{8}$	East Africa . . .	H. C. V. Hunter.
48 $\frac{3}{4}$	16 $\frac{1}{4}$	Somaliland . . .	Capt. M. M'Neill.
48	...	Uganda . . .	Col. F. D. Lugard, C.B., D.S.O.
48	16	B. E. Africa . . .	Col. Trevor Ternan.
44 $\frac{3}{4}$	14 $\frac{3}{4}$	Sudan . . .	Col. Ralph Vivian.
44 $\frac{1}{4}$	15 $\frac{1}{2}$	Somaliland	Prince Demeter Ghika.

**MAMMOTH or SIBERIAN ELEPHANT (*Elephas primigenius*).**

Nearly allied to the Indian elephant, but the plates of the teeth still narrower and more numerous, the tusks spirally twisted, and the skin clothed in woolly fur with long bristles intermixed.

Remains of this species occur in the superficial deposits of Europe and Northern Asia. In the frozen soil of Siberia the skin, flesh, and hair are frequently preserved, and the ivory is often suitable to the purposes of the turner.

Length (out- side curve).	Greatest Circum- ference.	Weight.	Locality.	Owner.
11 ft.	20 $\frac{7}{8}$ ins. <i>a</i>	173 lbs.	Siberia	Sir Edmund G. Loder, Bart.

**LION** (*Felis leo*).

<i>Ambassa</i> of the Abyssinians.	<i>Mkango</i> or <i>Nkalamo</i> in the Chilala and Chibisa countries.
<i>Asced</i> of the Arabs.	
<i>Imbubi</i> of the Swazis and Zulus.	<i>Simba</i> of the Swahilis.
<i>Lendja</i> of the Gallas.	<i>Tau</i> of the Basutos.
<i>Libbah</i> of the Somalis.	<i>Tauw</i> in the Barotse country.
<i>Libbaka</i> of the Abyssinians (Danakil).	<i>Tauw</i> in the Lake Ngami countries.

Any description of such a familiar animal as the lion (the only cat in which the male is furnished with a mane on the head and shoulders, and a tuft of long hair to the tip of the tail) would obviously be superfluous here. One of the great points of interest attaching to the species is its wide geographical distribution; and it has not yet been determined that the Indian form can be separated as a distinct race, the alleged absence of the mane having been shown to be inconstant. Neither can black-maned and yellow-maned lions be regarded as distinct forms, since examples of both may be met with in one and the same litter. Somali lions seem, however, to run smaller than those from either the Cape or Algeria, although their manes are often very fine. Heights of 3 feet  $4\frac{1}{2}$  and 3 feet 8 inches at the shoulder have been recorded in African specimens (the larger measurement by F. C. Selous), and 3 feet 6 inches in an Indian example (by Gen. W. Rice). Colonel Paget estimated the weight of a Somali lion at about 550 lbs. Wild lions never develop the enormous manes frequently seen in menagerie examples.

*Distribution*.—At the present day Africa from Algeria to the Cape, Mesopotamia on the west flanks of the Zagros range, Persia south of Shiraz, and India in the districts of Kathiawar, Sind, the Central Provinces, and Bundelcund. Now very rare in the latter country.

# LION (*Felis leo*).

Total length before skinning.		Length from nose to root of tail.		Skin measurement from tip of nose to tip of tail.		Height at shoulder.		Girth of forearm.		Girth behind shoulder.		Weight.	Description.	Locality.	Owner.
ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	lbs.			
-10	5 (A)	...	...	10	10½ (raw)	3	7	...	...	...	...	...	Full black mane	S. E. Africa	F. Vaughan Kirby.
-10	4	7	2	11	4	...	...	20	...	...	...	...	...	?	Do.
-10	4	...	...	...	...	...	...	...	...	...	...	...	...	Somaland	Count T. Zamoyski.
-10	0	6	10	...	...	3	6	22 (upper arm)	57	434	...	...	Fine mane	Edmund's Menagerie	W. Yellowby.
-9	11 (C)	...	...	11 (raw)	9	3	8	...	...	410	...	...	Do.	Hartley Hills, Mashonaland	F. C. Selous.
-9	10½ (D)	6	8	10 (dressed)	8	3	6	19½	51½	516	...	...	Do.	British East Africa	Capt. R. A. J. Montgomerie, C.B., R.N.
-9	10	...	...	...	...	...	...	...	...	...	...	...	Fair mane	Mashonaland	Sir John Willoughby, Bart.
-9	10 (E)	...	...	...	...	...	...	...	...	...	...	...	Do.	Limpopo	T. E. Buckley.
-9	10 (H)	...	...	12 (raw)	1½	3	7	...	49½	...	...	...	Full black mane	Mushukulumbwe	Major A. St. H. Gibbons.
-9	10	7	0½	10	10	...	...	...	...	...	...	...	Yellow and black mane	Somaland	J. Johnston Stewart.
-9	10 (K)	...	...	11	6	...	...	...	...	...	...	...	Do.	Do.	A. E. Leatham.
-9	8	6	6½	...	...	3	4½	15½	...	...	...	...	Fully yellow mane	Zomba, B. C. Africa	R. G. Beswick.
-9	8-13	6	10	...	...	...	...	...	...	...	...	...	...	East Africa	Prince Henry of Liechtenstein.
-9	8	...	...	...	...	...	...	...	...	...	...	...	Yellow mane	Oliphant River	James J. Harrison.
-9	7	...	...	11	3	...	...	...	...	...	...	...	Fine mane	North Somaland	Norman B. Smith.
-9	7 (L)	...	...	...	...	...	...	...	...	...	...	...	Do.	Kathiawar, India	Lord Harris, G.C.S.I.

-9 7	6	8½	...	...	...	...	...	...	East Africa	Prince Henry of Liechtenstein.
-9 6	...	...	...	...	...	...	...	...	Somaliland	Major A. E. Sandbach.
-9 5	6	6	...	...	...	...	...	...	Kathiawar	Lieut.-Col. L. L. Fenton.
-9 4½	...	...	...	...	...	...	...	...	Oliphant River	James J. Harrison.
-9 4	...	...	10	11	3	11	...	...	Somaliland	A. E. Pease.
-9 4	...	...	9	6	...	...	...	...	Do.	Count J. Potocki.
-9 3	6	6	10	3	3	11	16	45	Wellmaned, partially black	Count Scheibler.
-9 3	...	...	11	0	...	...	...	...	Do.	C. V. A. Peel.
-9 2 (F)	...	...	10	0	...	...	...	48	Black mane	Major T. R. Harkness.
-9 2	...	...	10	9½	...	...	...	...	Do.	Capt. M. McNeill.
-9 2	...	...	...	...	...	...	...	...	Lioness	Do.
-9 1	...	...	11	0	3	4	17	48½	Fair mane	Pungwe, S. E. F. C. Selous.
-9 1	6	1	9	7½	3	6½	15	44	Light coloured mane	Somaliland
-9 1 (C)	...	...	10	4	...	...	...	...	Do.	Capt. G. Campbell.
-9 1	...	...	10	4	...	...	...	...	Do.	Do.
-8 10	6	0½	9	1½	...	...	...	...	Lioness	J. Johnston Stewart.
-8 9½	...	...	...	...	...	...	...	490	...	Capt. Smee.
-...	...	...	9	5½	...	...	...	...	Somaliland	Count E. Hoyos.
-8 7½	...	...	9	2	3	3	...	...	Lioness	F. Vaughan Kirby.
-8 6	...	...	9	7	...	...	...	...	Old lioness	British East Africa
										Capt. R. A. J. Montgomery, C.B., R.N.

In the accompanying list of skull measurements many will be found belonging to the skins on p. 454.

I have not yet seen a Somali skull measuring over 15 inches. A lion skull may be easily recognised when placed beside that of a tiger by observing that in the lion all the terminations of the sutures of the skull on the frontal are almost level; in a tiger the nasal bones extend much further back—besides this a lion skull will stand much flatter on a table than that of a tiger.

### Skulls.

Basil length from back to front.	Width across the zygomatic arches.	Weight cleaned.	Locality.	Owner.
16½ (A)	10	...	South-East Africa	F. Vaughan Kirby.
16 (end broken)	10½	5 lbs.	East Africa .	E. Gedge.
-15⅞	9¾	6 lbs.	South Africa .	J. Lamont.
15½ (D)	10½	5 lbs. 3 oz.	East Africa .	Capt. R. A. J. Montgomerie, C.B., R.N.
15½	9½	...	Pungwe .	Hon. T. Thynne.
-15¼ (H)	9¾	...	Mushukulumbwe .	Major A. St. H. Gibbons.
15	10	...	Mashonaland	Basil H. Woodd.
-15	10	...	Somaliland .	J. D. Inverarity.
15	10	...	Benguela	G. W. Penrice.
15	9½	...	Beira . . .	H. T. and A. H. Glynn.
15	9½	...	Athi Plains .	C. F. S. Vandeleur, D.S.O.
15	10	...	Somaliland .	Col. Arthur Paget.
15 (C)	10	5½ lbs.	South-East Africa	F. C. Selous.
14¾	10½	...	East Africa .	Lord Delamere.
14¾	9	...	Matabeleland .	Capt. Sir K. Fraser, Bart.
14½	9¾	4 lbs.	South Africa .	Sir Edmund G. Loder, Bart.
-14⅜ (E)	9⅞	...	Limpopo .	T. E. Buckley.
14⅝	9½	...	Matabeleland	Capt. Sir K. Fraser, Bart.
14½ (G)	9¾	...	Somaliland .	Capt. G. Campbell.
-14½	8½	3½ lbs.	Nyasaland .	Dr. Percy Rendall.
14½	9¾	...	Somaliland .	Lieut.-Col. J. W. H. Flanagan.
14½	9⅞	4½ lbs.	Do. .	Rowland Ward.



LION (*Felis leo*). Skulls—*continued*.

Basil length from back to front.	Width across the zygomatic arches.	Weight cleaned.	Locality.	Owner.
-14 $\frac{1}{2}$ (K)	9 $\frac{1}{2}$	...	Somaliland . .	A. E. Leatham.
14 $\frac{1}{8}$	9	...	Matabeleland . .	Col. R. S. S. Baden-Powell.
♀ 14 $\frac{1}{8}$	8 $\frac{3}{4}$	...	South-East Africa	F. Vaughan Kirby.
14	10	...	Somaliland . .	Capt. C. J. Melliss.
-14	9 $\frac{5}{8}$	...	Do. . .	H. W. Seton-Karr.
14	9 $\frac{1}{2}$	...	Do. . .	Lord Delamere.
-14 (I)	9 $\frac{1}{2}$	4 lbs.	British East Africa	Count Scheibler.
13 $\frac{3}{4}$	9 $\frac{1}{2}$	...	Somaliland . .	Lord Wolverton.
13 $\frac{3}{4}$	9 $\frac{1}{2}$	...	Do. . .	E. W. S. Brooke.
-13 $\frac{3}{4}$	9 $\frac{1}{2}$	...	Do. . .	C. V. A. Peel.
-13 $\frac{1}{2}$	8	...	South Africa . .	Dr. W. P. Y. Bainbrigge.
13 $\frac{3}{8}$	8 $\frac{5}{8}$	...	Zomba . .	A. H. Sharp.
13 $\frac{1}{4}$	8 $\frac{1}{8}$	...	Mashonaland . .	Sir John Willoughby, Bart.
13 $\frac{1}{4}$	9	...	Kathiawar, India .	Lord Harris, G.C.S.I.

**TIGER (*Felis tigris*).**

A much less noisy animal than the lion, the great striped cat of Asia is also a more variable species, of which at least three local races may be recognised. First, we have the typical Bengal tiger, a large, long-limbed, lithe, and short-haired creature. A much smaller and rougher-haired race (*F. tigris virgata*) inhabits the Caspian provinces of Persia, and it is probably this form that extends into the Caucasus. Lastly, we have the Manchurian tiger (*F. tigris longipilis*), characterised by its large size, heavy build, short limbs, and the great length and thickness of the fur, which is often much less fully striped than in Indian specimens. The dimensions attained by tigers are given in the subjoined table.

*Distribution.*—From the Caucasus through Northern Persia, Afghanistan, India, Assam, Burma, the Malay Peninsula, Sumatra, Java, and China, to Manchuria and Amurland. In India ranging from an elevation of some 7000 feet in the Himalaya to Cape Comorin, but unknown in Ceylon.

Tiger *Felis Tigris*

Shot by His Highness  
The Maharajah of  
Kuch Behar.

width 54.9 in

Length from nose to tip of Tail  
before skinning 10 ft 1½ in  
dried skin 11 - 7 -

# TIGER (*Felis tigris*)—continued.

Length before skinned.	Length of body.	Length dressed.	Girth of body.	Upper arm.	Fore arm.	Girth. Head.	Height at shoulder.	Weight.	Locality.	Owner.
ft. in.	ft. in.	ft. in.	inches.	ft.	ft.	ft.	ft. in.	lbs.		
-10 7(A)	7 0	12 1	56½	25	19½	36	3 4	491	Ramshai Hâb, Duars, Bengal	Col. Evans Gordon.
-10 6	...	11 8	...	...	...	...	...	...	Assam Frontier	H. I. M. the Sultan of Turkey. (Shot by late Baron de Nolde.)
-10 5½	...	...	...	...	...	...	...	...	Central Provinces	Noel Fenwick.
-10 4	7 1½	12 2½	52	...	21	39	3 6	...	Bignor, N. W. P.	A. M. Markham.
-10 4(D)	...	...	...	...	...	...	...	...	Kanara, B. P.	W. Holland.
-10 3	7 1½	12 1	52	29	19½	36½	3 4½	487	Kuch Behar	Maharaja of Kuch Behar.
-10 3(C)	7 1	12 2	49	...	19½	32½	3 4	...	Balti Dun, N. W. P.	A. M. Markham.
-10 2½	7 0	...	48½	26½	20	38½	3 3½	530	Kuch Behar	Maharaja of Kuch Behar.
-10 2½	...	...	...	...	...	...	...	...	Nepal Terai	Sir E. L. Durand, Bart, C. B.
-10 2	...	...	...	...	...	...	...	...	Do.	Otho Shaw.
-10 1½	6 10	12 4	51½	28½	13¾	38	3 4½	462	Kuch Behar	H. H. the Maharaja of Kuch Behar.
-10 1½	7 1½	11 7	54	29	21	40½	3 8¾	600	Do.	Do.
-10 1	7 3	10 4½	...	...	...	...	...	...	...	Major J. W. M. Cotton.
-10 1	...	11 10	...	...	...	...	...	...	Kuch Behar	Capt. Hugh Fraser.
-10 1	...	...	...	...	...	...	...	...	Central Provinces	James J. Harrison.
-10 0½	...	12 6	66	...	...	...	...	...	Rewa, C. P.	H. de Barreto.
-10 0½	...	11 11½	...	...	...	...	...	...	?	E. R. Henry.
-10	6 11	...	52	26	21	36	3 4	540	Kuch Behar	Maharaja of Kuch Behar.
-10(E)	...	12 2	...	...	...	...	...	...	Terai Forests, Bengal	R. Nolan.
10 4(F)	...	...	...	...	...	...	...	...	Duars	Capt. S. H. Pollen.

-10	...	...	...	...	...	...	...	Nilgiri Hills	Sir Edmund G. Loder, Bart.
-9	11	6	9	...	50½	28½	20½	Kuch Behar	Count E. Hoyos.
-9	11	6	6	11	2	...	...	Rewa, C.P.	Do.
-9	11	...	...	11	1½	...	...	Nepal	A. E. Leatham.
-9	10½	6	11	...	54	29	19½	Kuch Behar	Maharaja of Kuch Behar.
-9	10½	6	10½	12	10	...	...	Do.	Capt. S. H. Pollen.
-9	10	...	...	...	...	...	...	Hyderabad	Capt. Hon. R. H. Marsham and Lieut. Sutton.
-9	10	6	6	...	...	...	...	Nepal Terai	Major B. B. Russell.
-9	10	...	...	11	8	...	...	Hyderabad, Deccan	A. M. Rotheram.
-9	9	...	...	...	...	...	...	Central Provinces	James J. Harrison.
-9	8½	...	...	...	48	24½	17	Hyderabad, Deccan	Capt. C. E. G. Norton and Capt. Sir K. Fraser, Bart.
-9	8	6	8	...	...	...	...	Kuch Behar	Count E. Hoyos.
-9	8	...	...	...	45	...	...	Terai	Lieut.-Col. B. D. Möller.
-9	8	...	...	...	...	...	...	Philipil	Capt. J. H. Gwynne.
-9	8(B)	...	...	...	...	...	...	North Kanara	Lieut.-Col. L. L. Fenton.
-9	8	...	...	...	...	...	...	?	Lieut.-Col. F. H. Whitby.
-9	7	...	...	...	...	...	...	Rewa, C.P.	O. V. Bosanquet.
-9	7	...	...	11	4	...	...	Do.	The late Sir Samuel Baker.
-9	6	6	3	...	...	...	...	Do.	Count E. Hoyos.
-9	6	...	...	...	...	...	...	Hyderabad, Deccan	Major G. A. L. Carew, D.S.O., and Capt. G. L. Holdsworth.
-9	6	...	...	10	9	...	...	Deccan	Capt. Frank Lee.
-9	5	...	...	...	...	...	...	Do.	J. D. Inverarity.
-9	5	6	4	10	4½	26	18	Kuch Behar	Count Scheibler.

# **TIGER (*Felis tigris*)—continued.**

Length before skinned.		Length of body.		Girth of body.		Upper arm.		Girth of fore arm.		Head.		Height at shoulder.		Weight.		Locality.		Owner.	
ft. in.	ft. in.	ft. in.	ft. in.	inches.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	lbs.	ft. in.	lbs.	ft. in.	lbs.	ft. in.	lbs.
-9 4½	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
-9 4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
-9 4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
-9 3½	6 0	...	...	44	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
-9 3½	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
-9 3	6 3	...	...	41	22	...	...	16	36	...	...	2 10	360	...	...	Kuch Behar	Maharaja of Kuch Behar.	...	...
-9 3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Eastern Bengal	O. V. Bosanquet.	...	...
-9 3	6 4	...	...	56	...	...	...	20½	39	...	...	...	over 563	...	...	Central Provinces	Capt. W. H. Hunter.	...	...
-9 3	6 4½	...	...	...	...	...	...	...	...	...	...	...	448	...	...	Do.	Bombay Natural History Society's Journal.	...	...
-9 3	...	9 3½	...	...	...	...	...	...	...	...	...	...	...	...	...	Chanda, C.P.	Capt. M. McNeill.	...	...
-9 2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Nepal	A. E. Leatham.	...	...
-9 1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Ram Naydr, N.W.P.	Capt. B. H. Boucher.	...	...
-9 9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	North Kanara	Lieut.-Col. L. L. Fenton.	...	...
-9 9 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Deccan	Capt. Frank Lee.	...	...
-9 8 10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Hyderabad, Deccan	Major G. A. L. Carew, D.S.O., and Capt. G. L. Holdsworth.	...	...
-9 8 8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Gwalior	Viscount Edmond de Poncins.	...	...
-9 8 7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rewa, C.P.	C. C. Branch.	...	...
-9 8 7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Do.	O. V. Bosanquet.	...	...
-9 8 5½	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Bignor District	Surgeon-Capt. E. McK. Williams.	...	...
															345				

TIGER (*Felis tigris*)—continued.

## Skulls.

Basal length from back to front.	Breadth across the zygomatic arches.	Weight cleaned. lbs. oz.	Locality.	Owner.
-15 $\frac{3}{4}$	...	...	Kuch Behar . .	Maharaja of Kuch Behar.
-15 $\frac{1}{2}$	10 $\frac{7}{8}$	...	N.E. Bengal . .	A. M. Murdoch.
-15 $\frac{1}{4}$	10 $\frac{1}{2}$	...	Purneah . . .	R. A. Sterndale.
-15 (A)	10 $\frac{3}{8}$	...	Bengal . . .	Col. Evans Gordon.
15	10 $\frac{1}{4}$	...	?	Rowland Ward.
14 $\frac{7}{8}$ (F)	10	...	Duars . . .	Capt. S. H. Pollen.
14 $\frac{1}{2}$	9 $\frac{3}{4}$	4 10	Do. . . .	Sir Edmund G. Loder, Bart.
14 $\frac{1}{2}$	10 $\frac{3}{8}$	...	Deccan . . .	W. J. R. Wingfield.
-14 $\frac{1}{2}$	10	...	Terai . . .	Bombay Natural History Society's Museum.
14 $\frac{1}{2}$	10 $\frac{1}{8}$	...	Central Provinces .	Capt. W. H. Hunter.
-14 $\frac{1}{2}$ (C)	10 $\frac{1}{4}$	...	Bignor District, C.P.	A. M. Markham.
14 $\frac{1}{4}$	10 $\frac{3}{8}$	...	Central Provinces .	Capt. E. A. D'Arcy Thomas.
14 $\frac{1}{4}$ D)	9 $\frac{1}{2}$	...	Kanara Jungles	W. Holland.
14 $\frac{1}{4}$ (E)	9 $\frac{1}{2}$	...	Terai . . .	R. Nolan.
-14	10	...	?	J. D. Inverarity.
-14	10 $\frac{9}{16}$	...	Bignor District .	A. M. Markham.
13 $\frac{7}{8}$	9 $\frac{3}{4}$	...	?	Capt. S. H. Pollen.
13 $\frac{3}{4}$	9 $\frac{1}{4}$	...	Indhaorèe, Nimar .	Lieut.-Col. H. Wade-Dalton.
13 $\frac{3}{4}$	9 $\frac{3}{4}$	...	?	Philip Wood.
13 $\frac{3}{4}$	9 $\frac{1}{2}$	...	Madras . . .	Col. J. Hinde.
-13 $\frac{3}{4}$ (B)	9 $\frac{1}{4}$	...	North Kanara . .	Lieut.-Col. L. L. Fenton.
13.70	9	...	Duars . . .	Mrs. Lawrie-Johnstone.
-13 $\frac{1}{2}$	9 $\frac{1}{2}$	3 14	?	Major J. W. M. Cotton.
13 $\frac{3}{8}$	9 $\frac{7}{8}$	...	Kumaun Terai . .	H. J. Boas.
-12 $\frac{5}{8}$	8 $\frac{5}{8}$	...	Bignor District, C.P.	A. M. Markham.

## Skins.

Length of skin dressed.		Locality.	Owner.
ft.	in.		
13	6	Chinese Mongolia . .	A. Bignold.
12	6	Do. . . .	Rowland Ward.
11	3 $\frac{1}{2}$	Do. . . .	W. H. Walker.
12	0	Do. . . .	H. R. H. le Duc d'Orléans.

A, B, C, D, E, F. For skins see p. 460.

LEOPARD (*Felis pardus*).

The leopard has an even larger range than the lion, and is probably the most widely distributed of all the cats. Sportsmen in India recognise a larger "panther" and a smaller "leopard," although naturalists fail to distinguish them as separate forms. The African and Indian leopards are also generally regarded as identical, but since the former has the spots on the body of smaller size than in the latter, and many of them without light centres, like those on the head, it is quite probable that it constitutes a different race. In Persia, Baluchistan, and the mountains of Sind is found a variety of the leopard (*F. pardus tulliana*) characterised by its pale colour, long fur, and thick tail; it is to some extent intermediate between the typical race and the ounce. Lastly, there is the Chinese leopard (*F. pardus fontanieri*), a very distinct animal, of heavy build, with a pale ground-colour to the fur, which is very long and thick, and the spots in the form of large complete rings, without any smaller spots in the centre. In the moist forest districts of Asia black leopards are by no means uncommon; and there is a tendency to darkening of a different type in some South African specimens. Height at shoulder from about 2 feet (India) to 2 feet 4 inches (Africa). A large leopard killed by Lieut.-Col. L. L. Fenton in the Gir forest, Kathiawar, measured 7 feet 8½ inches in length; the length of the tail being 35½ inches, the girth of the neck 21½ inches, of the forearm 11½ inches, and of the body behind the shoulder 35½ inches; weight, 160 lbs.

*Distribution*.—Africa, the Caucasus, Asia Minor, and Asia generally, with the exception of Northern Siberia, the Tibetan plateau, and perhaps Japan.

## a.—Indian Specimens.

	Male		Female	
	ft.	in.	ft.	in.
Length from tip of nose to end of tail . . .	7	0	6	4
"                    "            root of tail . . .	4	3½	3	7
Height at shoulder . . . . .	2	2½	1	9
Girth . . . . .	2	7	2	1
Circumference of upper arm . . . . .	0	13	0	10
"                    forearm . . . . .	0	10¾	0	8½

Shot in Ceylon by Count Scheibler.



LEOPARD (*Felis pardus*). Indian Specimens—*continued*.

Length before skinned.		Total length dressed.		Weight.	Locality.	Owner.
ft.	in.	ft.	in.	lbs.		
-8	4				Kuch Behar . .	Maharaja of Kuch Behar.
-8	2½	...		...	Do. . .	Do.
-8	1½	...		...	Do. . .	Do.
-8	0	...		154	Do. . .	Do.
-8	0	8	8½	...	India . . .	Count J. Potocki.
-7	10	8	4¾	...	Ganges Kadir . .	See below. <sup>1</sup>
-7	9½	8	6	...	Central Provinces .	James J. Harrison.
-7	9	...		...	Nepal . . .	C. H. H. B. Caldwell.
-7	9	...		...	Oudh . . .	Mrs. Innes.
-7	8	...		...	Hyderabad, Deccan .	Capt. C. E. G. Norton and Capt. Sir K. Fraser, Bart.
-7	8	...		...	Ganges Kadir . .	Muttra Tent Club. <sup>2</sup>
-7	7	8	7½	...	Siwaliks . .	E. H. E. Green.
-...		7	10	...	?	Col. W. Gordon Cumming.
-7	6	...		...	Chaubattia . .	Capt. R. B. Fell.
-7	1	7	10½	...	Rewa, C.P. . .	Count E. Hoyos.
-7	4½	...		...	Gujerat . .	Capt. H. J. Morphy.
-♀7	4	8	1	145	Bignor District .	Surg.-Capt. E. McK. Williams.
-7	4	...		...	Kathiawar . .	Lieut.-Col. L. L. Fenton.
-7	3	...		...	?	Lieut.-Col. F. H. Whitby.
-7	1	7	11½	...	Kotah . . .	Maharaja of Bikanir.
-7	1	...		...	Hyderabad, Deccan .	Major G. A. L. Carew, D.S.O., and Capt. G. L. Holdsworth.
-7	0¼	8	3½	...	?	Maharaja of Bikanir.
7	0	...		...	?	Major A. E. Ward.
-6	10	7	10	140	Bignor District	Surg.-Capt. E. McK. Williams.
-6	10	...		...	Chaubattia . .	Capt. R. B. Fell.
-6	8	...		110	?	M. Loam.
-♀6	5	...		...	Chaubattia . .	Capt. R. B. Fell.

<sup>1</sup> Speared by Capt. H. Hoare (5th D.G.), Capt. J. G. Rotton (R.A.), and W. Gillman (R.H.A.)<sup>2</sup> Major A. C. King and some officers of the 5th Lancers, when out with the Muttra Tent Club.

**LEOPARD (*Felis pardus*). Indian Specimens—continued.**

Length before skinned.		Total length dressed.		Weight.	Locality.	Owner.
ft.	in.	ft.	in.			
—...		7	8½	...	Kuch Behar .	Maharaja of Kuch Behar.
—♀ 6	2	6	5	...	Gwalior . .	Viscount Edmond de Poncins.
—♀ 5	11	...	...	...	Chaubattia . .	Capt. R. B. Fell.
—♀ 5	10	6	8½	96	Bignor District	Surg.-Capt. E. McK. Williams.
—♀ 5	8	6	4	80	Do.	Do.
—...		7	8	...	Kuch Behar .	Maharaja of Kuch Behar.
<sup>1</sup> —...		7	8	...	?	Capt. A. G. Ferguson.
—...		7	6½	140	Kuch Behar	Maharaja of Kuch Behar.
—...		7	4½	...	?	Col. Howard.
—...		7	4	...	Nepal .	H. L. Heber-Percy.
—...		7	1	...	Do.	Sir E. L. Durand, Bart., C.B.
—...		6	8	110	Madras . . .	M. Loam.

**b. AFRICAN SPECIMENS.**

Length before skinned.		Weight.	Locality.	Owner.
ft.	in.			
—7	3½	...	?	Count J. Potocki.
—7	3	...	Wadelai, E. C. Africa	Capt. W. P. Pulteney.
—7	2	...	Somaliland .	Count Scheibler.
—7	2	...	South-East Africa .	F. Vaughan Kirby.
—7	1½	...	?	C. V. A. Peel.
—7	0	...	Somaliland	J. Johnston-Stewart.
6	11	...	E. C. Africa . .	James J. Harrison.
—6	10	...	Somaliland	Count Scheibler.
—6	10	140	Nyasaland . . .	A. White.
—6	3	...	Somaliland . .	Norman B. Smith.
<sup>1</sup> —6	2	...	Jebba, Nigeria .	The late Capt. H. W. Baker.
—6	0	...	Somaliland .	Count E. Hoyos.
—♀ 6	0	...	Do. . .	C. V. A. Peel.
<sup>2</sup> —5	7	...	Nigeria .	Lieut.-Col. T. D. Pilcher.

<sup>1</sup> Height at shoulder, 2 ft. 1½ in.<sup>2</sup> Height at shoulder, 22 in.; girth, 21½ in.

The following specimens were shot and measured by F. Vaughan Kirby :—

(a) Nguanetsi River, S.E.A.    (b) Matamiri Bush, S.E.A.

Length, tip to tip in a straight line.		Length over all—'sportsman's' measurement.		Shoulder height.	Girth of neck.	Girth behind shoulder.	Girth of forearm.	Length of skull.	Zygomatic width.	Cleaned weight.	
ft.	in.	ft.	in.	ft.	in.	in.	in.	in.	in.	lbs.	oz.
(a) 6	11	7	2	2	7	22	35½	12½	9½	6½	1 8
(b) 6	9	7	2	2	7	20	33½	11½	9	5½	...

Leopard Skulls.

Total length.	Width.	Weight.	Locality.	Owner.
in.	in.	lbs. oz.		
—10¼	6½	...	Bignor District, N.W.P.	A. M. Markham.
—10 <sup>3</sup> / <sub>16</sub>	6½	...	Gir Forest, Kathiawar	Lieut.-Col. L. L. Fenton.
—9 <sup>1</sup> / <sub>8</sub>	...	1 5 clean	Nyasaland	Dr. Percy Rendall.
—9½	6	...	?	Julius Jeppe.
—9½	...	...	?	Do.
—9	5½	...	S.E. Africa	F. Vaughan Kirby.
—6¾	5	...	India	W. T. Blanford.

OUNCE or SNOW-LEOPARD (*Felis uncia*).

Although the Persian leopard is in some degree intermediate in respect to colour and the length of the coat, the ounce differs from the leopard by the ground-colour of the long and dense fur being dirty white, with the spots on the back, sides, and tail, in the form of large, irregular, ill-defined, and interrupted rings, and by the great thickness of the tail, which scarcely tapers, and is about three-quarters the length of the head and body. Height at shoulder about 2 feet 4 inches. Skull about 6 inches long.

*Distribution.*—The high ranges of Central Asia, including Gilgit, Hunza, Turkestan, Trans-Baikalia, Ladak, Tibet, Amurland and Western China, extending in the north-west to the Altai, and in the west, it is said, to Persia. In Prince Demidoff's *Hunting Trips in the Caucasus* a snow-leopard is figured as coming from that range, but

whether the animal found there is *F. uncia* or *F. pardus tulliana* may be doubtful. Generally dwelling at elevations of over 8000 feet, descending in Gilgit during winter to 6000 feet.

Length dressed.		Weight.	Locality.	Owner.
ft.	in.			
8	7	...	Tibet . .	Rowland Ward.
-8	6	Skull, $7\frac{3}{4} + 5\frac{1}{4}$	Kashmir . .	R. Rankin.
8	$2\frac{1}{2}$	...	Baltistan	E. Langworthy.
-7	10	...	Near Leh . .	Major S. Frewen.
-7	$5\frac{3}{4}$	...	Pamir . .	Viscount Edmond de Poncins.
7	5	...	?	Major F. J. Harden.
-7	4	(24 inches at shoulder)		R. A. Sterndale.
-7	3	...	?	Major A. E. Ward.

#### CLOUDED LEOPARD (*Felis nebulosa*).

The *arimau dahan*, as this species is called by the Malays, is the size of a small leopard, with a very long and thickly furred tail, and large upper tusks. The ground-colour of the fur varies from grayish brown to fulvous, upon which are large dark blotches, frequently bordered in part with black. In old specimens the blotches often disappear, leaving only the black borders.

*Distribution*.—From the Sikim and Bhutan Himalaya, through Assam, Burma, Siam, and the Malay Peninsula, to Sumatra, Java, and Borneo. Represented by a smaller variety (*F. nebulosa brachyurus*) in Formosa.

Length dressed.		Weight.	Locality.	Owner.
ft.	in.	lbs.		
-6	6	...	Assam . .	The late B. H. Hodgson.
-6	4	$44\frac{1}{2}$	?	R. A. Sterndale.
5	9	...	?	B. R. M. Glossop.
5	$7\frac{1}{2}$	...	Assam . .	The late B. H. Hodgson.
5	$7\frac{1}{2}$	...	Do. . .	P. Russel.

#### SKULL.

Basal length from back to front.	Breadth.	Locality.	Owner.
6.2 in.	4.75	Assam . .	The late B. H. Hodgson.

**JAGUAR** (*Felis onca*).

This cat may be regarded as the American representative of the leopard, which it fully equals, even if it does not exceed, in size. The colour and markings are generally similar to those of the latter, but the dark rings are larger and arranged more definitely in groups, each ring usually enclosing one or more dark central spots, and the enclosed light area being of the same tint as the general ground-colour of the fur, which is typically of a rich tan. Usually seven or eight more or less distinct longitudinal rows of rosettes may be noticed on each side of the body.

*Distribution*.—America, from Louisiana, Texas, and Northern Mexico to about the Rio Negro, on the northern confines of Patagonia in lat. 40° S.

Length before skinning.		Length dressed.		Locality.	Owner.
ft.	in.	ft.	in.		
-9	3	9	3	Brazil	Count Henry Coudenhove.
-8	3½	...	...	Do.	Do.
-6	11	7	9	Paraguay . .	James J. Harrison.
...	...	7	7	British Guiana .	Sir A. W. L. Hemming, K.C.M.G.

**PUMA** (*Felis concolor*).

With the exception of the much smaller and longer-tailed yaguarondi, the puma (pronounced pooma) is the only uniformly coloured cat found in America, where its range extends from British Columbia and Maine in the north to the Strait of Magellan in the south. The size is inferior to that of the jaguar, the height at the shoulder being about 2 feet, and the weight 150 lbs. The general colour of the fur is tawny, tending, like that of the Virginian deer, to reddish in summer, and to grayish in winter, with the middle of the back darker, and a whitish patch on the back of the otherwise black ears. But with such an enormous geographical range, it is inevitable there should be much local variation; and American writers recognise more than one species. *F. concolor oregonensis*, of the north-west coast, may be admitted as a local race, as may *F. concolor puma* of South America.

Length in the field.		Weight.	Locality.	Owner.
ft.	in.			
-8	6	about 150	...	A. Pendarves Vivian.
-7	6½	...	Brazil . . . . .	Count Henry Coudenhove.
-7	5	...	Gallegos River, Patagonia .	W. Moncreiffe.
-7	3	...	Fraser River, British Columbia	J. Fannin.
-7	0	...	Wyoming . . . . .	J. L. Scarlett.
-5	9	...	South America .	James J. Harrison.

**LYNXES** (*Felis lynx*, etc.).

The lynxes form a well-marked group connected with the more typical members of the cat tribe by the jungle-cat (*F. chaus*), and distinguished by the tuft of long hairs at the summit of the ears, and the absence of the first upper cheek-tooth. From the others the caracal (*F. caracal*), of Africa and India, is broadly distinguished by its long tail and uniform rufous colour. The short-tailed lynxes are, however, a group in which it is very difficult to determine whether the variations indicate distinct species or local races. In the typical European lynx (*F. lynx*) the tail is very short, the throat has a ruff of long hair, and the coat is spotted with dark brown. The Tibet lynx (*F. lynx isabellina*) is certainly only a pale variety. Probably the Canadian lynx (*F. lynx canadensis*), which may be identical with the lynx of Northern Europe and Asia, should hold the same rank; it ranges in America as far south as California. More doubt exists whether the red lynx (*F. rufa*), which is also widely extended in America, should be regarded as a separate race, but the so-called plateau lynx (*F. baileyi*) seems certainly only a variety of the former inhabiting the high grounds of Colorado, Utah, and Arizona. On the other hand, from differences in the form of the skull, the Spanish lynx (*F. pardina*), which is a fully spotted animal, seems rightly regarded as a distinct species. It ranges over a large portion of Southern Europe, including Turkey, Greece, Sicily, Sardinia, and Spain and Portugal. The ordinary lynx stands from 16 to 18 inches at the shoulder.

**a. EUROPEAN LYNX.**

Length on the field, nose to root of tail.	Locality.	Owner.
—42.9 in.	Eastern Carpathians	Prince Henry of Liechtenstein.

**b. TIBET LYNX.**

Height at shoulder, 16 or 18 inches.

**c. CANADIAN and RED LYNX.**

Length on the field, nose to root of tail.	Height at shoulder.	Weight.	Locality.	Owner.
<sup>1</sup> —38 in.	25	60 lbs. (about)	Wyoming	Capt. G. Dalrymple White.
<sup>2</sup> —32 „	22	40 lbs. (about)	Nova Scotia	Do.
		<sup>1</sup> Canadian Lynx.	<sup>2</sup> Bay Lynx.	

**d. CARACAL.**

Flat skin.	Locality.	Owner.
46½ in.	Nr. Grahamstown, S. Africa	Dr. H. Smith.

HUNTING-LEOPARD or CHITA (*Cynælurus jubatus*).

Although this animal is commonly called chita (cheetah) by Anglo-Indian sportsmen, that name is at least as often applied in India to the leopard. From all the true cats and lynxes the hunting-leopard differs by the claws being capable of only partial withdrawal into their sheaths, so that their tips are always exposed. The body also is more slender, and the limbs are proportionately longer. The black spots on the skin are small and without light centres, like those on the head of the leopard. Length 7 feet or less, height at shoulder 30 to 39 inches. A specimen speared by Lieut.-Col. L. L. Fenton in Kathiawar measured 6 feet  $\frac{1}{4}$  inch in length, the tail being 2 feet  $2\frac{1}{4}$  inches.

The animal is the "Ihlose" of the Zulus and Swazis, and is distributed sparsely throughout S.E. Africa. They usually hunt in couples, and fairly stalk their game, securing it with a swift rush at the last. Mr. F. Vaughan Kirby says: "I have seen a party of six hunting together and another of eight. Though I have often tried, I have never yet succeeded in running into one on horseback; they are incredibly swift of foot. They invariably kill their prey by strangulation."

*Distribution*.—Africa and South-Western Asia, extending from Persia to Western Turkestan and the countries east of the Caspian, and eastwards into India; unknown in the latter country on the Malabar coast and to the north of the Ganges, as it also is in Ceylon. The African hunting-leopard is stated to differ by its more woolly coat, and if this be the case, should be known as *C. jubatus laneus*.

## Shot in the Eastern Transvaal by F. Vaughan Kirby.

Total length in straight line. 6 ft. 8 in.		Do. over all. 7 ft. 7 in.		Tail. 2 ft. 9 in.	Vertical height. 2 ft. 11 $\frac{1}{2}$ in.	Girth of forearm. 8 $\frac{1}{4}$ in.	Do. shoulders. 31 in.
Length. ft. in.	Length of tail. ft. in.	Height at shoulder.		Locality.		Owner.	
-7 0	...	...		India		R. A. Sterndale.	
-6 0 $\frac{1}{4}$	2 2 $\frac{1}{2}$	...		Near Rajkot, Kathiawar		Lieut.-Col. L. L. Fenton.	
-6 4 $\frac{3}{4}$	2 3 $\frac{1}{2}$	28 $\frac{1}{2}$		N.E. Transvaal 90 lbs.		Dr. Percy Rendall.	
-6 4	...	...		Somaliland		J. Johnston-Stewart.	
-6 1 $\frac{1}{2}$	...	...		Do.		C. V. A. Peel.	
-6 0	...	...		Do.		Do.	

SPOTTED HYÆNA (*Hyæna crocuta*).Somali *Uaraba*.Danakil *Yangula*.Abyssinian *Jib*.*Setongwani* in the Barotse country.*Piri* in the Lake Ngami country.*Chimbwi* in the Chilala and Chibisa countries.

The hyænas form a small family of Carnivora allied in some respects to the cats, but distinguished by the form of the skull, the more numerous teeth (which are, however, to a considerable extent cat-like), and the four-toed feet, with non-retractile claws. The spotted hyæna is the largest of the three species, and takes its name from the large dark blotches on its tawny coat. Its carnassial teeth are more cat-like than those of the other species.

*Distribution*.—Africa, south of the Sahara.

Nose to root of tail in a straight line, 4 feet  $9\frac{1}{2}$  inches. Length of tail, 1 foot 1 inch.

Extreme length over all, 6 feet 3 inches.

Vertical standing height, 3 feet.

Girth behind shoulders,  $39\frac{1}{2}$  inches.

## SKULLS.

Length.	Width.	Weight.		Locality.	Owner.
in.	in.	lbs.	oz.		
-12 $\frac{1}{4}$	7 $\frac{1}{4}$	2	8	South-East Africa	F. Vaughan Kirby.
-12 $\frac{1}{4}$	7 $\frac{3}{8}$	2	12	Zomba, B.C.A.	D. MacAlpine.
-11	7 $\frac{1}{2}$	...		Somaliland	Viscount Edmond de Poncins.
-11	6 $\frac{7}{8}$	...		South-East Africa	F. Vaughan Kirby.
-10 $\frac{5}{8}$	6 $\frac{7}{8}$	2	3	East Africa	Capt. R. A. J. Montgomerie, C.B., R.N.





Brown Bear.

**BEARS (*Ursidæ*).**

Bears are so unlike other animals and so like one another that no one has the slightest difficulty in recognising a member of the group when he sees it. They constitute a family of Carnivora—the *Ursidæ*—and are spread over the greater part of the globe, with the exception of Africa to the south of the Sahara desert, and the Australasian islands. As some of their leading characteristics may be mentioned their large bodily size, clumsy build, shaggy fur, generally uniform coloration, the very short tail, and the application of the whole sole of the foot to the ground in walking. The skull and teeth are likewise very peculiar and

distinctive, although these need not be taken into consideration in this place.

In consequence of the marked similarity to one another of most members of the group, it is a matter of extreme difficulty to come to a definite conclusion as to the number of species of bears—not that this is a matter of very much importance one way or another. The typical member of the group is the familiar brown bear (*Ursus arctus*) of Europe, whose colour is generally a darker or lighter shade of brown, but occasionally tends to grayish. The Syrian bear (*U. arctus syriacus*), in which this grayish tinge predominates, may be regarded as a local variety, and the same is the case with the snow-bear of Kashmir (*U. arctus isabellinus*), in which the colour is generally a light creamy brown. European specimens probably seldom exceed eight feet, but the huge Kamschatkan bear (*U. arctus collaris*) grows to nine feet. Even more gigantic is the Kadiak bear (*U. arctus middendorfi*) of Kadiak Island, Alaska; while the Yezo bear (*U. arctus yesoensis*) of Japan is another large form, with much the external appearance of a grizzly. The Alaskan bear (*U. arctus dalli*), from the mainland of Alaska, is also a huge animal, slightly smaller than the one from Kadiak Island, with more resemblance to an ordinary brown bear than to a grizzly. The typical grizzly of the Rocky Mountains is a smaller animal, with longer and straighter claws, but scarcely entitled to rank as more than another local race (*U. arctus horribilis*), next to which comes the Barren Ground bear (*U. arctus richardsoni*). Finally, the last animal which can be included in this group of the genus is the African bear (*U. arctus crowtheri*), of North-Western Africa, still imperfectly known. The extinct cave-bear (*U. spelæus*) is a large species allied to the brown bear.

The little blue bear (*U. pruinusus*) of Tibet, with more or less of white on the head and shoulders, seems to form a distinct species. The same is the case with the American black bear (*U. americanus*), which is generally black, and exhibits distinctive features in the skull and teeth. Not improbably the Himalayan black bear (*U. torquatus*) is a relative of the last-named species; it may be recognised by the conspicuous white gorget on the breast. In Japan it is represented by the Japanese black bear (*U. japonicus*). The smallest species of the genus are the very distinct Malayan bear (*U. malayanus*), and the allied spectacled bear (*U. ornatus*) of the Peruvian Andes, the latter distinguished by the light-coloured rings around the eyes, from which it derives its name.

The most distinct of all the species included in the genus *Ursus* is

the Polar bear (*U. maritimus*), so distinct, indeed, that many naturalists think it ought to form a group by itself. Externally its chief characteristics are its white coat, and the presence of a certain amount of hair on the soles of the feet; both these peculiarities being evidently adaptations to the Arctic habitat of the animal. It has been recently stated that very old Polar bears exhibit a tendency to the development of a brownish tinge in the fur. Last of all come the Indian sloth-bear (*Melursus ursinus*), and the parti-coloured bear (*Elurops melanoleucus*) of Tibet, both of which are so different from the other kinds as each to form a genus by itself. The former is too well known an animal to need description, some of its characteristics being the long and bare snout, the ragged, wiry hair, extensile tongue, small cheek-teeth, and the diminished number of front teeth. From all its kindred the second differs by its pied fur, as it does by its remarkably-formed cheek-teeth, which are broader and shorter than in other bears.

#### α—SKULLS.

Basal length from back to front.	Width across the zygo- matic arches.	Weight cleaned.	Race, or Species.	Locality.	Owner.
in.	in.	lbs. oz.			
18 $\frac{3}{4}$	11 $\frac{3}{8}$	12 0	Cave bear	Europe .	Sir Edmund G. Loder, Bart.
18	11	10 0	Kamschat- kan	Siberia .	Hon. Walter Rothschild.
-16 $\frac{1}{2}$	...	...	...	Alaska .	H. W. Seton-Karr.
16	9 $\frac{5}{8}$	6 3	Polar	Arctic Seas .	Rowland Ward.
16	9 $\frac{5}{8}$	5 8	Do.	Nova Zembla .	J. Lamont.
15 $\frac{1}{2}$ (D)	9 $\frac{1}{2}$	5 10	Grizzly	Brit. Columbia	Sir Peter Walker, Bart.
15 $\frac{3}{8}$	9 $\frac{1}{4}$	4 10	Kamschat- kan	Kamschatka	Lieut. R. E. R. Benson, R.N.
15 $\frac{7}{8}$	10 $\frac{1}{2}$	5 13	Polar	Polar Seas .	Sir Edmund G. Loder, Bart.
14 $\frac{1}{2}$	9	5 14	Do.	Franz Josef Land	Jackson-Harmsworth Expedi- tion.
14 $\frac{1}{2}$	8 $\frac{1}{4}$	4 8	Grizzly	Brit. Columbia	S. B. Bennett.
14 $\frac{3}{8}$ (C)	8 $\frac{1}{4}$	5 0	Do.	New Mexico	Montague Stevens.
13	9 $\frac{5}{8}$	...	Polar	Spitzbergen .	The late Capt. Townley Parker.
-12 $\frac{7}{8}$	7	...	Sloth	Mysore .	Capt. M. M'Neill.
12 $\frac{1}{2}$	7 $\frac{3}{8}$	...	Do.	Cent. Prov. .	C. F. Egerton.
12 $\frac{1}{2}$	7	...	Grizzly	Wyoming .	J. L. Scarlett.
12 $\frac{1}{2}$ (B)	6 $\frac{3}{4}$	...	Sloth	Cent. Prov. .	Surgeon-Major M. O'C. Drury.
12 $\frac{3}{8}$	7 $\frac{5}{8}$	...	Snow	Kashmir	A. Ezra.
12 $\frac{1}{8}$	7 $\frac{5}{8}$	...	Grizzly	Wyoming	J. L. Scarlett.
12	7 $\frac{5}{8}$	...	Sloth	Cent. Prov. .	C. F. Egerton.
11 $\frac{3}{4}$	7 $\frac{1}{2}$	...	Snow	Kashmir	W. R. Bindloss.
11 $\frac{1}{2}$ (A)	6 $\frac{3}{4}$	...	Brown	W. Caucasus .	St. George Littledale.
-10	6.8	...	Black	Nepal .	W. T. Blanford.
-8.5	8.3	...	Malayan	Borneo	Do.

BEARS (*Ursidæ*)—*continued*.

## ♂—SKINS.

Length from nose to tip of tail.		Height at shoulder.		Girth.	Weight.	Race, or Species.	Locality.	Owner.
ft.	in.	ft.	in.	ft. in.	lbs.			
-13	6 <sup>1</sup>	...	...	...	1656	Kadiak Island	English Bay, Kadiak Is- land, Alaska	J. C. Tolman.
11	6 $\frac{1}{2}$ <sup>1</sup>	10 2 <sup>2</sup> (from one front paw to other)	...	...	1536	?	Nevada, 1881	W. F. Sheard.
9	10 <sup>1</sup>	...	...	...	...	Alaskan	Alaska . .	Rowland Ward.
9	8 <sup>1</sup>	...	...	...	...	Do.	Do. . .	Cape Town Museum.
9	5 <sup>1</sup>	...	...	...	...	Do.	Do. . .	Dublin Museum.
9	5	4 6	...	...	...	Polar .	Baffin Bay .	W. Livingstone Lear- month.
9	5 <sup>1</sup>	...	...	...	...	Alaskan	Alaska . .	Hon. Walter Rothschild.
8	10 <sup>1</sup>	4 0 (mounted)	...	...	...	Do.	Do. . .	British Museum.
8	7	...	...	...	1600	Polar .	Arctic Seas .	Captain Lyon.
8	7	...	...	...	...	Do.	Spitzbergen .	A. Barclay Walker.
8	6	...	...	...	...	Do. .	Franz Josef Land	Dr. S. H. T. Armitage.
-8	5	...	...	...	...	Black	Kashmir .	Capt. W. Westropp White.
8	4	...	...	...	...	Do. .	?	Surg.-Capt. W. White.
8	3	...	...	...	...	Kams- chatkan	Kamschatka .	Dr. F. H. H. Guillemard.
-8	0 $\frac{1}{2}$	...	...	...	...	Grizzly .	Wyoming .	T. W. H. Clarke.
8	0	...	...	...	...	Polar .	Spitzbergen .	A. Barclay Walker.
8	0 (D)	3 11	...	...	...	Grizzly .	Brit. Columbia	Sir Peter Walker, Bart.
-8	0 (C)	...	...	...	735	Do. .	New Mexico	Montague Stevens.
-7	11	...	...	...	800 (about)	Brown .	Norway .	Capt. Gerard Ferrand.
-7	9	...	...	...	...	Snow .	Kashmir .	Major C. F. Blane.
7	5 $\frac{1}{2}$	...	...	...	...	Black .	Wyoming	T. W. H. Clarke.
-7	1	...	...	...	...	?	N.W. Terri- tory	James J. Harrison.
-7	0 $\frac{3}{4}$	...	...	...	680 (about)	Brown .	Lithuania .	Prince Radziwill.
7	0	3 2	...	...	...	Do.	India .	Major A. E. Ward.
-6	11	...	...	...	...	Black .	Wyoming .	James J. Harrison.

<sup>1</sup> Skin measurement.<sup>2</sup> Measurement of head in the flesh from tip of nose to base of skull, 29 inches; between ears, 16 inches.

BEARS (Ursidæ). Skins—*continued*.

Length from nose to tip of tail.		Height at shoulder.		Girth.		Weight.	Species.	Locality.	Owner.
ft.	in.	ft.	in.	ft.	in.				
-6	10	3	0	4	4½	423	Sloth	Kuch Behar	Maharaja of Kuch Behar.
-6	9½	...	...	...	25	...	Snow	Kashmir	S. V. Occleston.
-6	8 (B)	...	...	...	...	...	Snow	Do.	A. Ezra.
-6	6	...	...	...	...	...	Grizzly	Wyoming	Count E. Hoyos.
-6	5	...	...	...	...	...	Do.	Do.	J. L. Scarlett.
-6	4½	...	...	...	...	...	Snow	?	Capt. H. M. Biddulph.
-6	3	...	...	...	...	...	Grizzly	Wyoming	J. L. Scarlett.
-6	2½	...	...	...	...	...	Black	Brit. Columbia	Count E. Hoyos.
-♀ 6	2	...	...	...	...	...	Grizzly	Cent. Prov.	Capt. M. McNeill.
-6	1½	...	...	...	...	...	Sloth	Mandla, Cent. Provinces	Capt. B. H. Boucher.
-6	1	...	...	...	...	...	Cinnamon	Wyoming	James J. Harrison.
-6	0½	...	...	...	...	...	Snow	Chamba	Do.
-6	0½	...	...	...	...	...	Sloth	Hyderabad	Count E. Hoyos.
-6	0	3	0	...	...	280	Do.	?	The late Col. G. P. Sanderson.
-5	10½	3	0	3	4	...	Red	?	Capt. H. M. Biddulph.
-5	10	...	...	...	...	...	Black	Kashmir	Major C. F. Blane.
-5	9	...	...	...	...	...	Sloth	Cent. Prov.	Capt. M. McNeill.
-5	8	...	...	...	...	...	Do.	Do.	James J. Harrison.
-5	5½	...	...	...	...	216	Do.	?	Capt. H. M. Biddulph.
-5	5	2	5¾	2	10¾	250	Black	Brit. Columbia	Count Scheibler.
-♀ 5	2½	2	11¼	4	4	about 600	Grizzly	Do.	Do.
-5	2 (A)	...	...	...	...	...	Brown	W. Caucasus	St. George Littledale.
5	2	...	...	...	...	...	Snow	Chamba	Capt. B. H. Boucher.
-5	1½	...	...	...	...	200	Brown	Wyoming	Count Scheibler.
-♀ 5	1.65	...	...	...	...	about	Snow	Kandgoot	Viscount Edmond de Poncins.
-4	11	...	...	...	...	...	Sloth	Ganjam Dis- trict	M. Loam.
-4	9.65	...	...	...	...	...	Do.	Odeypore	Do.
-4	7	...	...	...	...	...	?	Asia Minor	H. O. Whittall.

*N.B.*—Some of the specimens entered as "Grizzly" may be the barren ground bear.

**WALRUS** (*Odobœenus rosmarus* and *O. obesus*).

The unwieldy seal-like animals commonly known by a corruption of the Scandinavian name valross (whale-horse) form in some respects a connecting link between the true seals and the eared seals, although differing from both in the huge upper tusks which depend from the muzzle of males and females alike, as also by the thick yellow bristles covering the muzzle itself. Like the true seals, walrus have lost all traces of external ears, but, unlike the former, and like the eared seals, their huge hind-flippers are turned forwards beneath the body when on land. The molar teeth, which are adapted for crushing the shells on which these monsters feed, have simple flattened crowns, quite unlike those of seals. Although young and adolescent walrus have a fairly thick coat of yellowish fur, in old individuals the tough hide becomes almost bare, except for the aforesaid bristles. Walruses are estimated to attain a weight of from 2250 to 3000 lbs.

Walruses are exclusively confined to the Arctic seas, where they spend much of their time on the ice. There are two kinds, now generally regarded as separate species; the one confined to the North Atlantic, and the other to the North Pacific. The distribution of these animals is by no means of circumpolar extent, the Atlantic walrus (*O. rosmarus*) apparently not ranging on the Asiatic coast east of the mouth of the river Lena; while in America they do not appear to inhabit the vast extent of coast lying between the western shore of Hudson Bay and Alaska. The Pacific walrus, which is the larger animal of the two, with considerably the longer tusks, always had a restricted range, and is now becoming very scarce. In European museums it appears to be represented only by skulls and tusks, and even these are rare. Formerly the Atlantic walrus occurred in countless thousands, but in accessible situations its numbers have been greatly reduced, owing to incessant persecution for the sake of its valuable oil and ivory. Between 1870 and 1880 at least 100,000 of these animals are estimated to have been slain.

The largest walrus ever shot by Mr. W. Livingstone Learmonth measured 12 feet 8 inches in length, and the tusks when extracted measured  $25\frac{1}{2}$  inches in length and  $8\frac{1}{2}$  in circumference at the largest part, but, as is the case with nearly all old bull walrus, the tusks were much broken at the points.

WALRUS (*Odobœnus rosmarus* and *O. obesus*)—*continued*.

## TUSKS.

Total length of tusk.	Weight. lbs. oz.	Girth.	Locality.	Owner.
36	...	...	?	Sir Thos. Hesketh, Bart.
32 $\frac{3}{8}$	...	8 $\frac{3}{8}$	?	Bethnal Green Museum.
-31	6 1	...	...	F. Gordon George.
29	...	9 $\frac{1}{4}$	Arctic North America	C. C. Branch.
28 $\frac{3}{4}$	...	9 $\frac{3}{4}$	Do.	Do.
-25 $\frac{1}{2}$	...	8 $\frac{1}{2}$	Baffin Bay	W. Livingstone Learmonth.
-19	...	8 $\frac{1}{2}$	Spitzbergen	Alex. R. Alston.
...	Length from gum. 22 $\frac{1}{8}$	7 $\frac{3}{4}$	Do.	Sir Edmund G. Loder, Bart.
...	20 $\frac{3}{4}$	7 $\frac{1}{2}$	Do.	Sir Victor Brooke's Collection.
...	18 $\frac{1}{2}$	7 $\frac{1}{2}$	Do.	Arnold Pike.
...	18	7 $\frac{1}{2}$	Do.	Earl of Dunmore.
...	15 $\frac{1}{4}$	6	Kolguev	A. Coats.
...	12 $\frac{1}{2}$	7 $\frac{3}{4}$	Do.	Do.

NARWHAL (*Monodon monoceros*).

The narwhal is the only member of the Cetacean or whale order furnished with tusks. These are present only in the male, and generally the left one alone is developed. Occasionally, however, both grow, as exemplified in a specimen in the British, and a second in the Cambridge Museum. A model of the animal is exhibited in the British Museum.

*Distribution*.—Arctic Seas.

The following measurements refer to tusks:—

Length.		Circumference.	Weight.	Locality.	Owner.
ft.	in.		lbs.		
8	8 $\frac{1}{4}$	8 $\frac{5}{8}$	...	Arctic Seas	Bethnal Green Museum.
8	7 $\frac{1}{2}$	8 $\frac{1}{4}$	14	Do.	Rowland Ward.
8	3 $\frac{1}{4}$	7 $\frac{3}{8}$	...	Do.	Bethnal Green Museum.
8	3 $\frac{1}{4}$	7 $\frac{7}{8}$	...	Do.	Hon. Charles Ellis.
8	3	7 $\frac{3}{4}$	17	Do.	Rowland Ward.
7	10 $\frac{3}{4}$	8 $\frac{1}{8}$	...	Do.	Hon. Charles Ellis.
7	9	8 $\frac{3}{4}$	12 $\frac{1}{2}$	Do.	Sir Edmund G. Loder, Bart.
7	0	6 $\frac{3}{4}$	...	Do.	Duke of Westminster.

### SUGGESTIONS FOR RECORDING THE LENGTH OF ANIMALS IN THE FIELD.

As the animal lies on the ground, and where circumstances permit, proceed as follows :—

*Length.* Pull the nose and the tail so as to get it in as nearly as possible in a straight line. Fix four pegs in, one at the end of nose, one at end of tail, one at root of tail, and one at the nape of neck behind ears.

*Height at shoulder.* Put the leg or paw in a standing position and place a peg at top of withers and measure carefully standing height (a) with extended paw, (b) with spread paw, as well as length of fore and hind legs from pegs at the stomach line.

The columns in the game-book would thus be as follows :—

A to F. Straight length from nose to tip of tail.	P. Girth of head.
A to E. Length along curve to root of tail.	D to G. Height of hind-quarters.
E to F. Length of tail.	C to I. Height at shoulder.
A to B. Length of head to nape of neck.	K to L. Length of fore-leg.
N. Girth, upper arm.	H to G. Length of hind-leg.
M. „ forearm.	Weight, cleaned.
O. „ of body.	„ not cleaned.
	Cleaned skull (length, breadth, height, weight).

The above measurements together with the note of its sex, estimated age, where and when killed, condition of the animal, with any other features of interest, such as colour of the eyes and skin, length of the hoofs, condition of teeth, weapons used and effect of bullets, etc. etc., will be of interest.



Tiger shot by Major H. G. C. Swayne, Central Provinces.



## INDEX OF NAMES

- Abdy, Captain, 44  
 Acland, Sir C. T. D., Bart., 21  
 Acland, Sir T. D., Bart. (the late), 21  
 Acland-Hood, Sir A., Bart., 21  
 Adair, Captain F. E. S., 204, 218, 230, 318,  
     345, 362, 379, 381, 382  
 Adams, Dr. Leith (the late), 37  
 Ailsa, Marquis of, 204  
 Aitchison, Dr. J., 382, 383  
 Aitkens, F., 122, 161  
 Akroyd, C. H., 5, 11, 132, 298  
 Allan, P. S., 345  
 Allen, Dr. J. A., 4  
 Allen, J. W., 122, 134, 393  
 Allen, W., 31  
 Allgood, Lieut. A. E., R.N., 5  
 Alston, Alex. R., 273, 284, 301, 394, 421,  
     479  
 Altenburg, Prince, 26  
 American Exhibition Committee, 44  
 Amsterdam Zoological Gardens, 291  
 Ancaster, Earl of, 18  
 Anderson, Sir James, Bart., 74  
 Andersson, C. J. (the late), 439  
 Andrassy, Count Gèza, 25  
 Andrew, H., 127, 207  
 Angas, G. F., 289  
 Ansell, C., 215  
 Apcar, J. G., 36, 38  
 Arco, Count, 315  
 Arco-Zinneberg, Count, 29  
 Arkcoll, J., 274  
 Armitage, Dr. S. H. T., 476  
 Arnold, Major A. J., D.S.O., 108, 180, 184,  
     267, 285, 397  
 Ashburnham, Captain C., 448, 450  
 Ashby, F., 11  
 Ashby, Major J. S., 423, 451  
 Ashley, W. W., 48, 105, 113, 148, 156, 171,  
     172, 249, 257, 262, 274, 301, 304, 311, 429,  
     437, 452  
 Assheton-Smith, G. W. D., 22  
 Atholl, Duke of, 16, 17  
 Atholl, Dowager Duchess of, 57  
 Atkinson, H., 139, 191  
 Atkinson, Lewis, 271  
 Ava, Earl of, 45  
 Aylmer, G. Percy V., 17, 395  
 Babington, W. (the late), 172, 232, 235, 300  
 Bachelors' Club, 373  
 Baden-Powell, Col. R. S. S., 457  
 Bagot, Captain Joscelin, 47  
 Bailey, Abe, 131, 263, 311  
 Bailey, A. C., 379  
 Bailey, Captain W., 378  
 Baillie-Grohman, W. A., 44, 94, 315, 366  
 Bainbridge, Captain P. A., 424  
 Bainbrigg, Dr. W. P. Y., 79, 130, 131, 132,  
     134, 135, 139, 144, 145, 147, 151, 162, 169,  
     171, 176, 191, 195, 199, 213, 215, 216, 263,  
     267, 270, 271, 281, 285, 289, 299, 318, 322,  
     337, 344, 362, 379, 413, 421, 431, 440, 457  
 Baker, Capt. H. W. (the late), 466  
 Baker, Sir Samuel (the late), 44, 46, 423, 448,  
     450, 461  
 Banks, G. H. M., 10, 138, 147, 175, 262, 267,  
     284  
 Barber, F. H., 108, 116, 118, 125, 128, 138,  
     139, 143, 144, 165, 169, 173, 174, 185, 186,  
     187, 191, 194, 208, 214, 215, 216, 237, 249,  
     256, 262, 269, 270, 279, 283, 284, 288, 289,  
     294, 297, 299, 310, 391, 392, 427, 428  
 Barber, H. M., 118, 135  
 Barclay, Ford G., 46, 94, 105, 113, 139, 176,  
     248, 254, 257, 273, 305, 352, 359, 386, 387

- Barclay, G. N., 140  
 Barclay, Hugh G., 431  
 Baring, Captain Hon. E., 332, 413  
 Barker, W. Burchart, 384  
 Barnard, J. H., 7, 13  
 Barnardiston, G., 368  
 Barnes, Dr. Fancourt, 19  
 Barnum and Bailey, Messrs., 447  
 Barry, W., 279  
 Barttelot, Major E. M. (the late), 350  
 Bate, Thomas, 11, 59, 60, 327, 367  
 Bates, Sir E. P., 62  
 Bayley, Sir Steuart, K.C.S.I., 443  
 Beavan, Captain R. C. (the late), 71, 323  
 Beck, G., 412  
 Beddington, Claude, 135, 148, 169, 171, 284, 298  
 Beddington, H. M., 135, 148, 169, 171, 284, 298  
 Bedford, Duke of, 22, 34, 35, 38, 41, 45, 47, 48, 49, 50, 52, 53, 55, 57, 63, 69, 84, 87, 90, 99, 204, 277, 323  
 Beech, Reginald, 38, 213, 221, 362, 373  
 Beit, A., 118, 132, 135, 147, 171, 187, 191, 216, 262, 267, 271, 435, 439  
 Beit, Otto, 18  
 Belcher, Captain, 67  
 Benett-Stanford, J., 7, 19, 114, 233, 248, 298, 310, 334, 344, 346, 408, 421, 437  
 Bengough, C. F., 105  
 Bennett, S. B., 475  
 Benson, Lieut. R. E. R., R.N., 475  
 Beresford, Captain Hon. J. G., 344  
 Berkeley, E. J. L., 142, 208, 242, 245, 393  
 Berlin Museum, 107, 115, 128, 181, 182, 262, 291, 313, 385, 435, 440  
 Berners, Captain Ralph, R.N., 428  
 Besant, Major W. H., 250, 350  
 Bessborough, Earl of, 59  
 Beswick, R. G., 454  
 Bethnal Green Museum, 262, 411, 419, 443, 449, 479  
 Betton, C. Steuart, 116, 208, 246, 276  
 Bevan, Owen, 318  
 Biddulph, Captain H. M., 204, 213, 218, 337, 345, 378, 408, 477  
 Biddulph, Colonel J., 41, 63, 64, 79, 218, 223, 229, 324, 325, 332, 335, 341, 343, 344, 346, 352, 362, 370, 372, 381, 383, 384, 385, 409, 411  
 Biddulph, General Sir R., 385  
 Bigge, Captain G. O., 74, 445  
 Bignold, A., 463  
 Bikanir, Maharaja of, 204, 229, 230, 281, 424, 465  
 Bindloss, W. R., 38, 113, 249, 429, 475  
 Bird, S. G., 332  
 Blackwood, Lord Basil, 242  
 Blane, Major C. F., 47, 113, 156, 301, 329, 372, 476, 477  
 Blanford, W. T., 42, 49, 148, 227, 238, 321, 467, 475  
 Blewitt, R., 62  
 Bloemfontein Museum, 145, 199  
 Blois-Johnson, G., 341, 382  
 Blood, Major-General Sir B., K.C.B., 203  
 Blundell, Colonel H. B. H., C.B., 440  
 Blyth, Edward (the late), 343  
 Boas, H. J., 463  
 Boden, A. D., 418  
 Bodkin, J., 11  
 Bombay Natural History Society's Museum, 37, 62, 71, 73, 154, 204, 218, 304, 325, 411, 423, 462, 463  
 Bombay Natural History Society's Museum, Proceedings of, 411, 462  
 Bombelles, Count, 28  
 Bonham, G. L., 161, 176, 195, 208, 285, 393  
 Bonthron, Barclay, 47, 367  
 Booth, Sir Henry Gore, Bart., 84, 85  
 Bosanquet, O. V., 461, 462  
 Boucher, Captain B. H., 64, 73, 76, 82, 154, 318, 409, 462, 477  
 Bourke, Hon. Mrs., 20  
 Bower, Captain H., 372, 373  
 Bowie, Colonel M. M., 64, 400, 413  
 Bowker, A., 283  
 Bowker, M. E., 191  
 Bowker, W. Russell, 169, 261, 289, 428  
 Bowring, C. C., 122, 140, 147, 189, 194, 209, 263, 267, 268, 283, 298, 301, 311, 394, 429  
 Brackley, Lord, 135, 147, 264, 298  
 Braganza, H.R.H. D. Miguel, Duke of, 15, 25, 26, 315  
 Braithwaite, J. S., 10  
 Branch, C. C., 85, 462, 479  
 Brandon, A. J., 175, 195, 199, 300, 394  
 Brassey, Albert, 24  
 Brassey, Hon. T. A., 17, 19, 44  
 Breadalbane, Marquis of, 19  
 Breitmeyer, L., 19  
 Bridgeman, Colonel Hon. Francis C., 332  
 Brinkley, Captain J. T., 273, 349  
 British Museum, 1, 2, 3, 5, 7, 10, 11, 13, 28, 33, 35, 37, 38, 41, 42, 45, 51, 52, 53, 57, 58, 59, 62, 63, 65, 66, 67, 68, 69, 71, 73, 74, 75, 76, 77, 78, 79, 82, 83, 85, 87, 90, 91, 92, 97, 98, 99, 100, 106, 108, 109, 116,

- 118, 122, 123, 126, 130, 132 134, 135, 145,  
147, 148, 151, 152, 154, 155, 158, 161, 162,  
163, 164, 165, 166, 169, 171, 174, 176, 178,  
179, 181, 182, 184, 185, 187, 188, 189, 191,  
193, 196, 197, 203, 204, 205, 207, 208, 210,  
211, 213, 215, 216, 218, 219, 221, 225, 227,  
229, 230, 238, 239, 240, 242, 246, 251, 253,  
257, 262, 264, 267, 268, 271, 276, 277, 279,  
281, 283, 285, 286, 287, 289, 291, 293, 294,  
301, 302, 304, 305, 310, 313, 315, 316, 317,  
318, 319, 321, 322, 323, 325, 327, 329, 332,  
337, 339, 341, 344, 346, 347, 350, 352, 353,  
355, 357, 359, 361, 362, 363, 364, 366, 368,  
370, 372, 374, 376, 378, 379, 382, 383, 384,  
385, 386, 387, 388, 390, 392, 393, 395, 396,  
397, 399, 400, 401, 402, 404, 406, 407, 408,  
409, 412, 413, 415, 418, 419, 431, 432, 436,  
437, 439, 440, 444, 450, 476, 479  
Brodie, A. W. M., 108, 163, 180, 267, 268, 397  
Brogden, Captain J. S., 183  
Brooke, A. Basil, 17, 57  
Brooke, Sir Douglas, Bart., 20, 23  
Brooke, E. Howard, 378  
Brooke, E. J., 445  
Brooke, E. W. S., 450, 457  
Brooke, Captain Harry V., 82, 203, 228, 229,  
321, 335, 383  
Brooke, H. Brinsley, 85, 316, 355, 387  
Brooke, Sir R. M., Bart., 23  
Brooke, Sir Victor, Bart. (the late), 5, 7, 11,  
12, 23, 37, 48, 52, 56, 57, 60, 63, 69, 71, 73,  
74, 76, 77, 79, 82, 85, 92, 96, 97, 99, 105,  
109, 116, 118, 130, 132, 134, 148, 155, 164,  
174, 182, 205, 210, 215, 225, 227, 229, 230,  
238, 239, 240, 244, 250, 256, 263, 270, 281,  
284, 287, 289, 291, 294, 298, 313, 316, 322,  
329, 332, 335, 337, 341, 343, 344, 353, 355,  
359, 361, 367, 374, 379, 381, 382, 383, 384,  
385, 387, 388, 393, 397, 402, 412, 419, 443,  
479  
Browne, Sylvester, 5, 10, 45  
Bruce, C. W. A., 71, 412, 417, 418  
Bryden, H. A., 113, 118, 139, 171, 215, 271,  
289, 301, 311  
Buchanan, Surg.-Major J. B., 204  
Buck, W. J., 24, 355  
Buckler, J. R., 289  
Buckley, T. E., 120, 132, 135, 139, 147, 169,  
175, 176, 187, 189, 194, 199, 208, 213, 242,  
257, 268, 284, 368, 436, 454, 456  
Buffon, 183  
Burchell, Dr. (the late), 191, 197, 207  
Burdon, J. A., 291  
Burnett, J., 99  
Burns, W. S. M., 18  
Burrow, C. G., 23  
Burton, Lord, 16, 17  
Burton, Major A. (the late), 38  
Butter, A. E., 327, 368  
Büttikofer, Dr. J., 152  
Buxton, E. N., 13, 25, 28, 45, 46, 225, 226,  
273, 300, 315, 326, 348, 350, 352, 355, 386, 387  
Buxton, Gerald, 366, 367  
Buxton, H. G., 205, 281  
Caccia, A. M., 64, 76, 154  
Cadell, A., 329  
Cadell, Lewis J., 7  
Caine, L. E., 246  
Cairns, Earl, 64, 401  
Calcutta Museum (*see* Indian Museum)  
Caldwell, C. H. H. B., 465  
Caley, Sir Edward, 11  
Cambridge Museum, 479  
Camden, Marquis, 19, 401  
Cameron, A., 134, 148, 162, 166, 176, 194,  
199, 299, 394  
Cameron, E. S., 93  
Campbell, A. C., 130  
Campbell, A. S., 432  
Campbell, Captain George, 113, 213, 232, 235,  
249, 274, 301, 361, 455, 456  
Campbell, Colonel J. E., 443  
Campbell, Dr., 41  
Campbell of Kilberry, J., 343, 347, 360  
Campbell, J. McI. M'Iver, 94, 95, 105  
Campbell, Hon. K., 123  
Campbell, V. L. A., R.N., 6  
Campbell, W. Y., 270, 300  
Campbell-Orde, Sir A., Bart. (the late), 399  
Cape Town Museum, 118, 123, 130, 131, 139,  
144, 147, 149, 151, 159, 161, 167, 169, 172,  
174, 191, 194, 208, 215, 262, 266, 271, 285,  
289, 297, 311, 440, 476  
Capell, A. E., 285  
Cappel, E. L., 256  
Carden, J. R., 346, 362  
Carew, Capt. B. L., 248, 274, 302, 361, 383  
Carew, Major G. A. L., D.S.O., 261, 344,  
378, 379, 413, 461, 462, 465  
Carey, —, 408  
Carr, Lieut.-Col. E. E., 204  
Carr-Glyn, Geoffrey, 20  
Carrington, Colonel E. (the late), 451  
Carrington, Major-General, Sir F. C., K.C.B.,  
K.C.M.G., 194

- Carroll, J. W., 107, 184, 197, 201, 267  
 Carroll, R. P., 141, 197, 435, 445  
 Carter, H. R. P., 423  
 Carter, Rev. V. R., 440  
 Cathcart, Sir Reginald, Bart., 423  
 Cator, R., 275  
 Cavendish, H. S. H., 171, 200, 298, 450, 451  
 Cetywayo (the late), 450  
 Chalmers, Guthrie and Co. (Messrs.), 450  
 Chamberlain, Col. Neville, 423  
 Chambers, Major O. A., 229  
 Chanler, W. Astor, 116, 142, 200, 207, 242, 306, 392, 436, 450, 452  
 Chapman, Abel, 2, 4, 7, 12, 17, 24, 354, 355  
 Chapman, G. D. E., 172, 272  
 Charrington, F., 392  
 Charrington, Henry, 142, 207, 242, 245, 276, 436  
 Charteris, Hon. A., 20  
 Cheetham, G. H., 112, 247, 248, 274, 302, 304  
 Chelmsford, General Lord, G.C.B., 450  
 Chillingworth, S., 262, 267, 298, 310, 428  
 Chisholme, Colonel Scott, 74  
 Cholmondeley, V., 47, 363  
 Christian, E. G., 285  
 Church, P., 213, 223, 339, 362, 373, 408, 412  
 Clapperton, Captain (the late), 126, 396, 397  
 Claraz, G., 419  
 Clarke, T. W. H., 47, 48, 57, 95, 105, 113, 156, 157, 171, 232, 233, 235, 248, 249, 252, 253, 255, 273, 300, 304, 327, 366, 476  
 Clifton, J. Talbot, 5, 18, 19, 390  
 Clive, P. A., 107, 180, 397  
 Cloete, Montrose, 20, 195  
 Clough, J. W., 79  
 Coats, A., 479  
 Cobb, W. H., 74, 232, 253, 257, 300, 304  
 Cobbold, J. D., 44, 327, 345, 350, 358, 367, 381, 387  
 Cobbold, P. W., 38, 339  
 Cobbold, R. P., 346, 372, 373  
 Coburn, F., 313  
 Codrington, Captain E. W. (the late), 38, 341, 344  
 Codrington, Captain H. W., 38, 203, 218, 229, 318, 335, 341, 344, 361, 362, 379, 382, 383  
 Codrington, W. R., 346  
 Coke, Lieut.-Col. Hon. W., 5, 13, 45, 47, 105, 108, 115, 139, 162, 169, 175, 179, 181, 194, 199, 239, 250, 266, 275, 284, 289, 300, 302, 332, 367, 395, 435, 440  
 Colby, J. V., 6, 94, 326  
 Collett, General Sir Henry, K.C.B., 79, 341  
 Collins, A. H., 78, 79  
 Colmore, Q. C., 5  
 Colville, Major A., 281  
 Compton, Captain Lord Douglas, 131, 175, 393, 412  
 Conway, Sir W. Martin, 7  
 Cookson, Captain F., 18, 19, 92, 94, 105, 130, 169, 209, 215, 216, 271, 302, 311, 366  
 Cookson, W. R., 19, 105  
 Cooper, Frank, 44, 368  
 Cooper, R. A., 147, 167, 172, 175, 187, 194, 216, 263, 271, 284, 293, 301, 310, 311, 394, 419  
 Coote, Eyre, 399  
 Copeman, Capt. H. C., 318  
 Coppinger, A. J., 204, 229  
 Coryndon, R. T., 122, 148, 161, 187, 189, 194, 208, 260, 261, 294, 311, 439  
 Cottingham, H. L., 412, 444  
 Cotton, B., 250  
 Cotton, Major J. W. M., 74, 204, 382, 414, 460, 463  
 Coudenrove, Count Henry, 98, 99, 469  
 Cox, Captain P. Z., 259, 411  
 Crane, D. H., 94  
 Crispin, G. C. W., R.N., 6  
 Crosley, W., 176  
 Crossman, Major-General Sir Wm., K.C.M.G., 435  
 Crum, A. S., 318, 361  
 Culme-Seymour, Admiral Sir Michael, Bart., 367, 423  
 Cumberland, Major C. S., 11, 38, 47, 64, 74, 76, 82, 213, 221, 339, 346, 352, 359, 361, 372, 373, 376, 378, 382, 383, 384, 409, 413  
 Cumine, A., 63, 230, 412  
 Cuninghame, Captain G. R., 249  
 Cuninghame, R. J., 300, 428  
 Cuppage, Colonel (the late), 334  
 Curtis, W. S., 130, 216  
 Cust, Lieut.-Col. M., 64, 73  
 Cuthbert, Captain G. J., 226, 364  
 Czetwertynski, Prince Boris, 171, 235, 249, 272, 289, 392, 429, 436  
 Dalgety, Captain H. B., 462  
 Dalgleish, —, 408  
 Dalgleish, Sir W. Ogilvie, 17  
 Dallas, A. G., 390  
 Dalton, Captain E. G., 325  
 Dalzell, Major Hon. A., 378  
 Danford, C. G., 33, 315, 353, 384  
 Darley, J., 44

- Darling, Jff., 161, 169  
 Darrah, H. Z., 38, 212, 213, 218, 335, 342, 345, 408  
 Dartmouth, Earl of, 261, 270, 301, 435  
 Darwin, Charles (the late), 99  
 Dashwood, General R. L., 5, 6, 9, 10  
 Dauvergne, H., 373  
 David, Père A., 58, 90, 219, 319, 326  
 Davies, Digby, 113, 249, 257, 273, 300, 306, 450  
 Davies, H. E. M., 62  
 Davies, H. Ll., 418  
 Davis, A. P., 321  
 Davis, A. W., 175, 215  
 Deasy, Captain H. H. P., 359, 409  
 de Bardi, Henri de Bourbon, Comte, 219, 379  
 de Barreto, H., 460, 462  
 de Brazza, S., 293  
 de Burgh, Hugo, 329  
 de Bylands, Count J., 113, 114, 233, 248, 253, 256, 274, 305, 437  
 Decatur, S., 11  
 Declé, Lionel, 142  
 Deeble, Surgeon-Major B. W. C., 82  
 Deeds, W. G., 445  
 Delamere, Lord, 13, 111, 114, 116, 120, 141, 142, 157, 169, 171, 176, 177, 179, 200, 207, 232, 235, 242, 244, 245, 253, 256, 258, 259, 273, 274, 301, 302, 304, 311, 393, 449, 450, 455, 456, 457  
 de Lucinge, Prince, 109, 197, 250, 286, 301, 304  
 de Lucinge, Prince A., 113, 148, 162, 175  
 Demidoff, Prince, 12, 13, 33, 34, 47, 219, 316, 346, 353, 357, 359, 376, 384, 423, 467  
 Demidoff, Princess, 376  
 de Murietta, F., 364  
 Denham, Colonel (the late), 126, 396, 397, 419  
 Denman, G. L., 24  
 Denny, E. M., 24  
 Denny, P. R., 249, 302, 450, 451  
 de Nolde, Baron (the late), 460  
 de Paris, H.R.H. la Comtesse, 22  
 de Poncins, Viscount Edmond, 64, 113, 114, 148, 157, 162, 172, 176, 196, 204, 225, 226, 229, 232, 235, 237, 248, 249, 257, 258, 259, 273, 274, 281, 286, 303, 304, 316, 334, 346, 364, 372, 374, 423, 424, 428, 429, 448, 449, 451, 462, 466, 468, 472, 477  
 de Pousargues, E., 35, 50  
 De Prée, H., 346, 400, 413, 414  
 Derby, Earl of (the late), 126, 184, 267, 285, 313, 397, 419  
 de Trafford, Sir Humphrey, Bart., 16, 44  
 Devas, F., 17  
 De Weese, Dall, 10  
 de Winton, F., 101, 102  
 Dibble, H., 424  
 Didham, Captain Chambers, 74, 76  
 Dingwall, K., 381  
 Dolby, G. A., 431, 445  
 Donaldson-Hudson, Mrs., 59  
 d'Orléans, H.R.H. le Duc, 19, 22, 29, 34, 41, 48, 85, 87, 114, 213, 232, 250, 254, 255, 256, 298, 305, 313, 359, 374, 388, 406, 423, 440, 463  
 d'Orléans, Prince Henri, 218, 221, 223  
 Douglas, Major George, 113, 205, 274, 327, 343, 345, 382  
 Down, C. P., 229  
 Dowson, Captain C. Hutton, 62  
 Dowson, Staff-Surgeon J., R.N., 98, 123, 176, 289, 393, 421  
 Drayson, General A. W., 283  
 Drewitt, Dr. Dawtrey, 237  
 Drought, J. A. H., 366  
 Drury, Surgeon-Major M. O'C., 475  
 Dublin Museum (*see* Science and Art Museum)  
 Du Cane, A., 85  
 Du Chailu, P., 287  
 Dudley, Countess of, 18  
 Dufferin and Ava, Marquis of, 281  
 Dunbar, J. Brander, 134, 157, 171, 194, 232, 235, 248, 253, 285, 300, 306  
 Dunell, O. R., 122, 131, 147, 149, 151, 161, 165, 169, 174, 187, 191, 194, 199, 208, 215, 263, 266, 271, 283, 288, 293, 297, 310  
 Dunmore, Earl of, 19, 33, 45, 47, 174, 262, 267, 289, 299, 346, 373, 394, 421, 431, 479  
 Dunsford, F. B., 263, 298  
 Durand, Sir E. L., Bart., C.B., 460, 466  
 Durban Museum, 176, 289, 298, 437  
 East India Club, 334, 349, 381  
 Ebdén, Alfred, 215, 216, 293  
 Ebrington, Viscount, 21  
 Eden, Sir Ashley, 41  
 Edinburgh Museum (*see* Science and Art Museum)  
 Edmonds, W. A., 194  
 Edey, Surgeon-Major J. S., 248  
 Egerton, Captain A., 326  
 Egerton, C. F., 64, 76, 154, 413, 475  
 Elliot, Sir C. A., Bart., 431  
 Ellis, Major-General Sir Arthur, K.C.V.O., 26, 27, 62, 63, 73, 132, 176, 284, 300, 316, 373, 412

- Ellis, Hon. Charles, 11, 38, 44, 45, 60, 175,  
 213, 284, 289, 300, 321, 339, 343, 346, 373,  
 379, 382, 421, 479  
 Ellis, Major C. C., 5, 44, 249, 274, 301, 304,  
 316, 366, 372  
 Ellis, F. H. B., 367  
 Elphinstone, Lord, 413  
 Elwes, H. J., 7, 12, 29, 34, 41, 49, 50, 60,  
 87, 344, 376  
 Ennismore, Viscount, 176, 194, 208, 394  
 Erbach, Count, 26  
 Erbach-Erbach, Count, 30  
 Erdödy, Count George, 27  
 Erdödy, Count Rudolf, 27  
 Esterhazy, Count Michael, 27  
 Eustace, C. F., 284  
 Evans, Vet.-Capt. G. H., 66, 70, 71, 73, 80,  
 82, 230, 323, 412, 417, 418  
 Evans, Colonel J., 61, 63, 154, 229  
 Everett, A. H., 67  
 Eyre, A., 194  
 Eyre, H. H. (the late), 171  
 Ezra, A., 475, 477  
 Ezra, E., 344
- Fairholme, Major W. E., 413  
 Falconer, Dr. H. (the late), 37, 62  
 Fannin, J. T. (*see* Victoria Museum)  
 Farquhar, Ernest, 11, 44, 94  
 Fawcett, Major J. M., 281  
 Fell, Captain R. B., 154, 465, 466  
 Fenton, Lieut.-Col. L. L., 63, 73, 82, 154,  
 204, 230, 281, 322, 352, 384, 411, 412, 414,  
 423, 455, 461, 462, 463, 464, 465, 467, 471  
 Fenton, Major W. D. B. (the late), 38, 345  
 Fenwick, Noel, 316, 400, 460  
 Ferguson, Captain A. G., 466  
 Ferguson, Major H. J., 46  
 Ferrand, Captain Gerard, 7, 11, 476  
 Ferrers-Stranack, R. H., 189, 209, 294  
 Festetics, Count Tassilo, 27, 29  
 Festing, Captain A. H., 107, 108, 163, 183,  
 201, 397  
 Finch, B. T., 276  
 Field, The, 24, 423  
 Fielden, —, 261  
 Fielden, Colonel W. H., 390  
 Fife, Duke of, K.T., 20  
 Fincastle, Viscount (V.C.), 346, 374  
 Findlay, F. R. N., 131, 161, 169, 193, 199  
 Findlay, M. le C., 33  
 Finnie, Captain Robert, 423  
 Finsch, Dr. O., 221
- Firman, H. B., 431  
 Fitzgerald, Captain G. J., 48, 94, 105, 230, 413  
 Fitzgerald, G. P., 367  
 Fitzgerald, Lord Walter, 382  
 Fitzherbert, J. W., 440  
 Fitzpatrick, J. P., 261  
 Flanagan, Lieut.-Colonel J. W. H., 248, 256,  
 274, 305, 412, 456  
 Fletcher, E. L., 18  
 Fletcher, W. A. L., 17, 87  
 Flower, Lewis, 372  
 Forbes, A., 399  
 Forbes, A. J., 271, 302  
 Forbes, Major P. W., 123, 195, 266, 297, 310,  
 421  
 Fordham, W. A., 48  
 Forsyth, Sir Douglas (the late), 49, 372  
 Forsyth, Captain J. (the late), 73, 410  
 Fortescue, Earl, 21  
 Fortune, J., 444  
 Foster, J. Kenneth, 48, 85, 113, 156, 249, 256,  
 302, 305, 436  
 Foster, Major Kingsley, 38  
 Fountaine, A. C., 262, 266, 271  
 Fowler, Sir John, Bart., 17  
 Fowler, J. K., 18  
 Fowler, Sir Thomas, Bart., 175, 301  
 Franklin, Captain Sir J. (the late), 5  
 Fraser, Captain Hugh, 105, 460, 462  
 Fraser, Captain Sir K., Bart., 263, 311, 456,  
 461, 465  
 Fraser, Major R. H., 413  
 Frere, Sir Bartle, Bart., 435  
 Frewen, Moreton, 46, 48, 92, 94, 367, 406  
 Fulke-Greville, Hon. C. B., 344  
 Fuller, F. C., 267  
 Fuller, Captain John, 401, 413  
 Fünfkirchen, Count Henry, 28
- Gage, M. F., 185  
 Gedge, E., 116, 119, 128, 142, 169, 171, 175,  
 179, 185, 187, 207, 242, 245, 276, 294, 304,  
 395, 421, 436, 456  
 George, F. Gordon, 479  
 German Emperor, H.I.M. the, 29  
 Ghika, Prince Demeter, 27, 177, 305, 306, 437,  
 452  
 Ghika, Prince Nicolas, 29, 114, 248, 273, 301,  
 437  
 Gibbons, Major A. St. H., 169, 189, 193, 266,  
 297, 454, 456  
 Gilbert, R., 62  
 Gill, Captain T. W., 17

Gilliat, J. B., 46, 105  
 Gillman, W., 71, 465  
 Ging, Captain, 153  
 Gleichen, Captain A. W. E. Count, 17  
 Glossop, B. R. M., 73, 113, 232, 233, 248,  
 253, 268, 274, 301, 318, 322, 428, 468  
 Glyn, Sir Richard, Bart., 392  
 Glynn, A. H., 138, 147, 150, 161, 174, 191,  
 194, 199, 261, 264, 284, 289, 297, 456  
 Glynn, H. T., 138, 147, 150, 161, 165, 174,  
 191, 194, 199, 261, 264, 284, 289, 297, 456  
 Goddard, H. C., 268, 313  
 Goff, T. C. E., 46  
 Goldingham, J. D., 411, 443  
 Goldschmidt, G. A., 315  
 Goold-Adams, Major H. J., C.B., C.M.G., 122,  
 149, 151, 166, 167, 169, 187, 189, 262, 266,  
 270, 271, 283, 289, 293, 294, 297, 310, 311  
 Gordon, Colonel Evans, 460, 463  
 Gordon, Captain E. R., 281  
 Gordon, Captain P. J., 221, 229  
 Gordon, Colonel T. E., 372  
 Gordon, Captain W. E., 346  
 Gordon-Cumming, Colonel, 16, 17, 84, 465  
 Gordon-Cumming, Roualeyn (the late), 16,  
 131, 266, 270, 438, 447  
 Gordon-Cumming, Colonel W. G., 438, 439  
 Gore, Sir G., Bart., 46  
 Gore-Graham, W. P., 350  
 Gossage, W. W., 18  
 Gough, J. E., 123, 140, 161, 177, 194, 209,  
 264, 267, 285, 311, 394  
 Gould, George H., 366  
 Gould, J., 316  
 Gouldsmith, C. C., 123, 138, 175, 195, 393  
 Grace, M. P., 46  
 Graeme, G. Lloyd, 327  
 Graham, Lieut.-Colonel, 325  
 Graham, Captain M. D., 298, 310  
 Graham, P. N., 6, 11  
 Grahamstown Museum, 207, 283  
 Grant, Colonel (the late), 341  
 Grant, Sir Arthur, Bart., 17, 84  
 Grant, A. J., 221, 340, 341  
 Grant, C. Macpherson, 84  
 Grant, E., 44  
 Grant, Sir G. Macpherson, Bart., 84  
 Grant, Major James, 63, 73, 85, 92, 169, 176,  
 263, 298, 311, 343, 390, 393, 411  
 Grant, Captain Johnstone (the late), 16  
 Grantley, Lord, 237  
 Graves, A. B., 204  
 Gray, Dr. G. R., 37

Greaves-Bagshawe, M. C., 263, 267, 310  
 Green, E. H. E., 465  
 Greenaway, Lieut.-Colonel T., 218, 378  
 Greenfield, T. W., 113, 245, 249, 253, 274,  
 275, 302, 305, 332, 345, 373, 409, 411, 449  
 Greenway, Major, 377  
 Grenfell, C. A., 17  
 Grenfell, Captain H. H., R.N., 6  
 Greville, Hon. C., 263, 298, 311  
 Grieve, J. W., 431  
 Grinnell, G. B., 92  
 Grogan, E. S., 195  
 Grogan, Sir E. Ion, Bart., 339  
 Grudzinski, Count, 254, 436  
 Guides, Officers' Mess, Q.O. Corps of, 38, 329,  
 335, 341, 343, 344, 382  
 Guillemard, Dr. F. H. H., 144, 370, 426, 476  
 Guinness, Major E., 343  
 Gunnis, F. G., 232, 235, 256, 302, 306  
 Günther, Dr. A., 241  
 Gwynne, Captain J. H., 63, 461  
  
 Hagenbeck, Carl, 87, 310, 343, 352, 435  
 Haggard, J. G., 163  
 Hale, Surgeon-Major G. E., D.S.O., 64, 74,  
 401  
 Hall, A. C., 345  
 Hallowes, Major R., 6  
 Hamilton, Duke of, 390  
 Hamilton, Marquis of, 52, 135, 139, 311, 393  
 Hamilton, A. S., 122  
 Hamilton, General Douglas (the late), 411,  
 412  
 Hanbury, David T., 5, 39, 218, 223, 346, 371,  
 373, 374, 379, 390  
 Hanbury, J. M., 47  
 Hancock, Captain W. W., 76  
 Handyside, J. S., 31  
 Hankey, Lieut.-General B., 44  
 Hanson, Lieut.-Colonel G. W., 444  
 Harden, Major F. J., 468  
 Harden, Major J., 345  
 Hardinge, Hon. C., C.B., 353  
 Hardwicke, General (the late), 71, 402, 412  
 Hardy, Hon. Gathorne, 48  
 Hardy, Gerald, 367  
 Hare, E. P., 272, 304  
 Hargreave, John, 17  
 Harkness, Major T. R., 304, 455  
 Harris, Lord, G.C.S.I., 454, 457  
 Harris, Frank, 139, 175, 289, 294, 297  
 Harris, L. T., 399  
 Harris, Sir W. Cornwallis (the late), 103

- Harrison, Captain Edgar G., 434  
 Harrison, James J., 6, 11, 44, 45, 73, 92, 94, 123, 134, 139, 140, 147, 150, 169, 175, 176, 194, 204, 208, 263, 270, 284, 300, 311, 327, 393, 421, 428, 431, 436, 443, 445, 447, 448, 451, 452, 454, 455, 460, 461, 465, 466, 469, 476, 477  
 Hart, W. W., 10, 390  
 Harting, J. E., 85  
 Harvey, Colonel C. B., 7  
 Harvey, Sir Robert, Bart., 38, 62, 63, 76, 115, 125, 128, 141, 148, 154, 158, 169, 177, 196, 197, 208, 213, 230, 242, 244, 275, 276, 285, 305, 329, 339, 344, 362, 379, 381, 392, 408, 436  
 Hastings-Wood, C., 230  
 Hatch, G. W., 73  
 Hawker, R. McD., 113, 232, 235, 248, 253, 273, 301, 304, 305  
 Hay, Lord A., 33  
 Hay, A. R., 64, 74, 401  
 Hayes, Major C. H., 339, 345  
 Hayes-Sadler, Major R., 118, 138, 271, 298, 310  
 Hayes-Sadler, Captain W., 335  
 Heathcoat-Amory, Sir John, Bart., 21  
 Heber-Percy, Major Algernon, 368, 404  
 Heber-Percy, H. L., 401, 466  
 Heber-Percy, Colonel R. J., 82, 205, 213, 230, 322, 329, 345, 355, 379  
 Hemming, Sir A. W. L., K.C.M.G., 469  
 Henderson, A., 24  
 Henniker, Major Hon. A. H., 19  
 Henry, E. R., 460  
 Henry, Captain G. F., 131, 134, 176, 195  
 Herron, G. O. M., 57  
 Hesketh, Sir Thomas, Bart., 479  
 Heuglin, —, 181  
 Hibbert, Captain E. H. R., 64, 281  
 Hicks, F. R., 179  
 Hicks-Beach, Captain A., 204, 229, 318, 329, 413  
 Higgs, Dr. (the late), 108  
 Hill, Sir Clement, Bart., 28, 316, 421  
 Hill, Captain G. W., R.N., 390  
 Hinde, Colonel J., 463  
 Hinde, S. L., 116, 141, 242, 245, 268, 421  
 Hoare, Captain H., 465  
 Hobley, C. W., 115, 207  
 Hodgson, B. H. (the late), 41, 63, 71, 76, 79, 82, 218, 322, 325, 360, 362, 378, 379, 400, 409, 419, 468  
 Hogg, Major, 353  
 Holden, E. F., 345  
 Holden, H. R., 123, 139, 176, 194, 284, 392  
 Holdsworth, Captain G. L., 203, 461, 462, 465  
 Holland, H. C., 431, 445  
 Holland, W., 460, 463  
 Hollinek, Eberhard, 315  
 Holmwood, F. (the late), 435  
 Holt, P. A., 357  
 Holub, Dr. Emil, 187  
 Hopley, Mr. Justice, 108, 120, 122, 128, 130, 132, 138, 144, 147, 149, 151, 154, 161, 166, 167, 169, 171, 174, 184, 187, 189, 191, 194, 199, 208, 237, 242, 248, 251, 253, 256, 261, 266, 271, 284, 293, 297, 310, 311, 393, 440  
 Hornaday, W. T., 405  
 Hornby, Colonel J. F., 21  
 Hosack, D. D. F., 445  
 Hoselton, Colonel, 10  
 Howard, Colonel, 315, 466  
 Hoyos, Count E., 46, 95, 105, 131, 134, 139, 144, 162, 169, 174, 175, 177, 195, 199, 203, 209, 216, 225, 232, 235, 250, 256, 262, 266, 274, 285, 289, 300, 305, 311, 327, 347, 367, 393, 406, 429, 436, 448, 451, 455, 461, 465, 466, 477  
 Hoyos, Count Joseph, 25  
 Hoyos, Count Jose, 28  
 Hoyos, Count Max, 26  
 Hudson, W. O., 415  
 Hughes, R., 175, 393  
 Hulke, Captain L. I. B., 229, 318, 346  
 Humbert, A. C., 130, 161  
 Hume, A. O., C.B., 37, 38, 39, 40, 41, 49, 62, 63, 66, 70, 71, 73, 76, 79, 81, 82, 100, 202, 203, 204, 205, 213, 218, 220, 221, 223, 229, 230, 272, 281, 318, 320, 321, 323, 325, 328, 329, 332, 334, 335, 336, 337, 338, 341, 343, 344, 351, 352, 361, 372, 373, 378, 379, 381, 382, 384, 388, 399, 400, 407, 408, 411, 412, 414, 415, 431, 443  
 Hunt, Commander A. T., 176, 195, 301, 310, 350, 393, 421  
 Hunter, H. C. V., 64, 71, 76, 115, 124, 125, 127, 128, 141, 158, 177, 197, 207, 213, 218, 229, 242, 244, 245, 257, 275, 276, 284, 305, 372, 381, 383, 392, 408, 417, 418, 435, 452  
 Hunter, Captain W. H., 462, 463  
 Hutchinson, Lieut.-Col. R. E., 343  
 Hutchison, J. R., 17, 18, 19  
 Hutton, Colonel E. T. H., 203  
 Ilchester, Earl of, 22



- Illingworth, P. H., 216  
 Indian Museum, Calcutta, 41, 42, 62, 71, 73,  
 76, 77, 82, 154, 213, 218, 230, 281, 318,  
 323, 325, 329, 332, 343, 352, 361, 372, 379,  
 411, 415, 417  
 Inglefield, Commander G. F., 21  
 Innes, Mrs., 465  
 Inverarity, J. D., 62, 63, 73, 74, 76, 153, 154,  
 213, 248, 253, 257, 306, 332, 352, 383, 399,  
 411, 412, 413, 428, 429, 456, 461, 463  
 Italy, H.M. the King of, 347, 374  
 Italy, H.M. the late Victor Emanuel, King of,  
 347  
 Ivrea, Marquis of, 315, 353
- Jackson, F. J., C.B., 115, 119, 120, 122, 128,  
 141, 148, 157, 158, 163, 172, 176, 185, 197,  
 200, 207, 208, 241, 242, 244, 246, 257, 272,  
 274, 275, 276, 284, 285, 310, 392, 393, 436,  
 448, 450, 451  
 Jackson-Harmsworth Polar Expedition, 475  
 James, F. L. (the late), 395  
 James, H. A., 94  
 James, H. E. M., 87  
 James, Walter, 326  
 James, W. D., 7, 109, 110, 114, 177, 233, 249,  
 250, 268, 274, 286, 301, 304, 395, 421  
 Jameson, J. A., 139, 262, 266, 300, 367  
 Jameson, J. S. (the late), 118, 187, 193, 262,  
 270, 405, 440, 451  
 Jankovich, G., 28  
 Jay, P., 63  
 Jayakar, Surg.-Lieut.-Col. A. S. G., 330  
 Jenkins, S. E. F., 80  
 Jenkinson, Major G. S. C., 180, 397  
 Jeppe, Carl, 184  
 Jeppe, Julius, 106, 107, 108, 109, 110, 116,  
 118, 120, 122, 123, 126, 128, 130, 131, 132,  
 134, 138, 140, 144, 145, 147, 148, 149, 150,  
 157, 161, 166, 167, 169, 171, 174, 175, 179,  
 180, 184, 185, 187, 189, 191, 193, 195, 197,  
 199, 201, 216, 225, 233, 235, 237, 242, 245,  
 249, 253, 263, 266, 271, 274, 279, 283, 284,  
 289, 293, 297, 302, 306, 310, 316, 394, 397,  
 428, 436, 440, 450, 451, 467  
 Jerdon, Dr. T. C. (the late), 431  
 Jhalawar, Maharaj Rana Bahadur of, 153, 228  
 Johnson, C. R., 335, 339  
 Johnston, Sir H. H., K.C.B., 137, 279  
 Johnston-Stewart, J., 82, 100, 113, 157, 204,  
 232, 235, 249, 253, 256, 257, 273, 297, 318,  
 381, 454, 455, 466, 471  
 Johnstone, Mrs. Lawrie, 463
- Johnstone, R., 218, 361, 379, 382  
 Jones, C. T., 130, 132, 135, 147, 149, 151,  
 161, 166, 167, 169, 175, 187, 191, 194, 199,  
 216, 263, 271, 284, 285, 289, 293, 297, 300,  
 302  
 Jones, Highway, 62  
 Jones, Captain Lewis, 74  
 Jones, Walter, 353
- Keglevich, Count B., 28  
 Keith-Falconer, V. F. A., 345  
 Kelham, Major H. R., 345  
 Kemp, II. F., 24  
 Kempson, T. P., 6, 92, 94, 95, 327, 367  
 Kennard, C. H., 367  
 Kennard, Martyn, 38, 332, 335, 339, 343, 373,  
 381, 412  
 Kennedy, Lord David, 193  
 Kennedy, Vice-Admiral Sir William, 5, 69, 97,  
 98, 99  
 Keppel, Commander C., C.B., 69  
 Keppel, G. Roos, 73, 341  
 Keys, H. W., 412  
 King, Colonel, 37  
 King, Captain A., 350  
 King, Major A. C., 465  
 King, H. S., 71  
 Kinloch, Major-General Alexander A. A., 71,  
 74, 203, 213, 218, 229, 329, 334, 336, 341,  
 344, 361, 379, 383, 399, 408, 412, 443, 444  
 Kirby, F. Vaughan, 103, 122, 123, 132, 134,  
 135, 138, 139, 147, 149, 150, 151, 161, 165,  
 167, 169, 171, 174, 191, 193, 199, 207, 261,  
 262, 264, 266, 283, 289, 297, 310, 392, 394,  
 420, 421, 425, 428, 429, 431, 435, 447, 454,  
 455, 456, 457, 466, 467, 471, 472  
 Kirk, Sir John, K.C.B., 116, 122, 128, 158,  
 164, 196, 197, 283, 300, 304, 305, 394, 421,  
 435, 448, 450  
 Kirwan, Major Maitland, 45, 47, 94, 367  
 Knight-Bruce, J. C. L., 10  
 Kraus, Dr. A., 151  
 Kuch-Behar, Maharaja of, 372, 398, 399, 400,  
 411, 412, 431, 459, 460, 461, 462, 463, 465,  
 466, 477  
 Kund, Jenö, 27
- Labouchere, F. A., 315, 343  
 Lacy, Lieut. E., R.N., 239  
 Lambton, Captain Hon. W., 431  
 Lamont, J., 392, 421, 435, 456, 475  
 Lane, Captain H. P., 462  
 Lane, W. H., 362, 378

- Langworthy, E., 346, 468  
 Lansdowne, Marquis of, K.G., K.C.M.G.,  
     334, 343, 372  
 Larios, Pablo, 355  
 Lascelles, Hon. Gerald, 85  
 Law, S. C., 63  
 Lawley, Major Hon. R. T., 262  
 Lawrence, C., 19  
 Lawrence, W., 372, 373  
 Lawrence, W. R., 339, 378  
 Lawson, E. St. J., 203  
 Laycock, J. F., 18  
 Lean, F., 393  
 Learmonth, W. Livingstone, 99, 476, 478,  
     479  
 Leatham, A. E., 48, 71, 73, 76, 94, 96, 249,  
     274, 327, 332, 355, 368, 378, 454, 457, 461,  
     462  
 Leather, Captain G. F. T., 175, 232, 233,  
     235, 257, 304  
 Le Champion, Loftus M., 228, 281  
 Lee, C. G. R., 368  
 Lee, Captain Frank, 461, 462  
 Lee, L. B., 48  
 Lehmann, Captain F. H., 123, 132, 139, 175,  
     195, 263, 271, 393  
 Leigh, J. Hamilton, 19  
 Le Mesurier, T., 203  
 Lennard, H., 46, 64, 105, 223, 335, 373, 400  
 Lennard, H. St., 74  
 Lethbridge, A. Y., 387  
 Levita, Captain Cecil, 318, 347  
 Liddell, C., 157, 232, 256, 301  
 Liebinger, P., 94, 405  
 Liechtenstein, Prince Henry of, 25, 26, 27,  
     47, 162, 177, 207, 238, 242, 245, 250, 267,  
     300, 393, 404, 406, 436, 454, 455, 470  
 Lilford, Lord (the late), 24, 385  
 Lindsay, A. B., 329  
 Lindsay, H. E., 401, 445  
 Lister-Kay, Colonel F. C., 74, 218, 337, 361,  
     381, 400, 408  
 Littledale, Edmund, 366  
 Littledale, S. George, 5, 32, 33, 45, 86, 87,  
     88, 104, 105, 204, 219, 223, 315, 316, 322,  
     327, 332, 339, 346, 356, 357, 361, 366, 372,  
     373, 374, 375, 376, 379, 382, 403, 404, 406,  
     408, 475, 477  
 Livingstone, David (the late), 186, 308  
 Livingstone, Captain H. A. A., 131, 132, 191  
 Llewelyn, Sir R. B., K.C.M.G., 313  
 Lloyd, Mrs. Graham, 60  
 Lloyd, Colonel G. E., D.S.O., 350  
 Lloyd, Surgeon-Major O. E. P., 78  
 Loam, M., 64, 332, 465, 466, 477  
 Loder, Sir Edmund G., Bart., 5, 10, 18, 26,  
     33, 35, 37, 41, 45, 52, 57, 58, 59, 63, 66,  
     67, 69, 71, 73, 76, 77, 78, 79, 85, 87, 90,  
     92, 94, 97, 99, 100, 105, 110, 113, 116, 118,  
     119, 126, 128, 131, 134, 139, 144, 152, 153,  
     155, 157, 162, 166, 171, 175, 180, 182, 183,  
     185, 187, 191, 194, 197, 201, 208, 210, 213,  
     215, 218, 221, 225, 226, 229, 232, 235, 237,  
     242, 245, 248, 250, 253, 256, 259, 262, 266,  
     267, 271, 273, 275, 276, 277, 279, 281, 284,  
     287, 289, 291, 298, 299, 304, 305, 311, 313,  
     315, 318, 322, 325, 327, 329, 332, 335, 341,  
     343, 345, 347, 350, 352, 353, 355, 357, 359,  
     361, 364, 366, 370, 372, 374, 376, 378, 379,  
     381, 384, 387, 394, 397, 399, 402, 406, 412,  
     418, 419, 421, 423, 440, 448, 450, 452, 456,  
     461, 463, 475  
 Loftus-Tottenham, W. F., 80, 413  
 Logan, Crawford G., 45, 105  
 Logan, E. T., 46, 48, 94, 105  
 Long, A. M., 323  
 Lonsdale, Earl of, 5, 11, 327, 390  
 Lort-Phillips, E., 19, 208, 232, 239, 257, 268,  
     300, 305, 395  
 Low, H. B., 66, 418  
 Lucas, C. T., 20, 22  
 Lucas, W. H., 22  
 Lucknow Museum, 204, 334, 345, 361, 374,  
     378, 381, 400, 408  
 Lugard, Capt. E. J., 215, 284  
 Lugard, Colonel F. D., C.B., D.S.O., 108,  
     116, 120, 142, 185, 196, 207, 242, 245, 424,  
     450, 452  
 Lumsden, D. M., 400, 444  
 Lydekker, R., 38, 218, 322, 339  
 Lyon, Captain, 476  
 Lyte, W. Maxwell, 19  
 MacAlpine, D., 161, 283, 297, 472  
 Macdonald, H. C., 297, 310, 392  
 Macdonald, Major J. R., 196  
 Macdonald, R. H., 335  
 M'Douall, Kenneth, 7  
 Macintosh, Mrs., 5  
 Mackay, W. Grant, 366  
 Mackenzie, A. T., 412  
 M'Kie, J., 424  
 M'Lachlan, W. J., 345, 382  
 Maclagan, Fergus, 288  
 Maclaine of Lochbuie, The, 94, 144, 298, 352,  
     366

- M'Lean, H., 31  
 MacLean, H. L. S., 329  
 MacLeod, Captain J. N., 63  
 MacMaster, General, 332  
 M'Micking, Captain H., 412  
 M'Neill, Captain M., 73, 76, 85, 112, 229,  
     248, 274, 305, 412, 436, 437, 448, 451, 452,  
     455, 462, 475, 477  
 Madan, R. H., 62  
 Mainwaring, Lieut.-Col. H. G., 256  
 Makin, Charles, 11, 46  
 Malet, Major A. G. W., 76  
 Maloney, Dr., 215  
 Mann, T. H., 445  
 Manners, Lord Edward, 176, 195  
 Marchetti, G., 11  
 Marker, Captain R. J., 443, 444, 445  
 Markham, A. M., 460, 463, 467  
 Marriott, Captain John, 7, 84, 350, 352, 364,  
     387  
 Marshall, E. T., 114, 274  
 Marshall, Lieut.-Col. L., 25  
 Marsham, Captain Hon. R. H., 461  
 Marston, Colonel F., 352  
 Martin, Colonel, 203  
 Martin, Colonel Cunliffe, 205  
 Massey, Major C. F., 382  
 Mathews, General Sir Lloyd William, 122,  
     393  
 Mathie, Colonel J., 399  
 Matschie, Dr. P., 102  
 Maude, H., 38  
 Maxwell, Colonel C., 150  
 Maxwell, Captain J. M'Call, 95, 105, 113,  
     256, 273, 301, 450, 451  
 Meerut Tent Club, 423  
 Meldrum, James, 428  
 Melliss, Captain C. J., 457  
 Melville, S., 346  
 Menges, J., 109, 110, 112, 114, 179, 232, 233,  
     235, 237, 239, 248, 253, 256, 257, 258, 259,  
     267, 272, 274, 298, 304, 349, 395  
 Meran, Count John of, 315  
 Messel, L. C. R., 92  
 Methuen, Messrs., 137  
 Meux, Sir H. B., Bart., 45, 256, 388, 449, 450  
 Meyer, Dr. A. B., 30  
 Micklethwait, G., 162, 195, 284  
 Micklethwait, R. K., 18, 122, 135, 162, 195,  
     394  
 Mikhaelovitch, Grand Duke, 33  
 Millais, J. G., 17, 18, 19, 20, 22, 23, 56, 57,  
     84, 85, 174, 261, 262, 267, 297, 374  
 Millbank, P. C., 388  
 Milne, G. B., 213, 408, 409  
 Milner, Sir A., 191  
 Mitchell, F. J., 45, 311  
 Mitchell, Dr. R. P., 138  
 Mittrovsky, Count, 26  
 Mockler, Captain G. H., 79  
 Mockler-Ferryman, Major A. F., 183  
 Moir, D. F., R.N., 6  
 Möller, Lieut.-Colonel B. D., 461  
 Molyneux, Captain F., 6  
 Monck-Mason, R. H., 397  
 Moncreiffe, W., 43, 44, 47, 350, 386, 387,  
     469  
 Moncrieff, R., 84  
 Montgomerie, Captain, R. A. J., C.B., R.N.,  
     115, 128, 142, 208, 245, 276, 316, 392, 436,  
     454, 455, 456, 472  
 Moray-Brown, J. (the late), 424  
 Morgan, Rhodes, 332  
 Morland, Major H. C., 46, 73, 204, 213, 229,  
     232, 235, 249, 274, 306, 339, 361, 374, 378,  
     400  
 Morphy, Captain H. J., 465  
 Morris, Sir John, K.C.S.I., 62, 64  
 Morris, Colonel W. J., 62  
 Morse, I., 329, 339, 408  
 Moseley, A., 118, 134, 298  
 Mosse, Charles B., 163  
 Muir, J. Gardiner, 115, 171, 176, 208, 242,  
     244, 276  
 Mumford, T., 444  
 Murdoch, A. M., 463  
 Murphy, Captain M., 335, 339  
 Murray, A., 5  
 Murray, H., 388, 435  
 Murray, H. W., 413  
 Murray, M. (the late), 186  
 Murray, W. S., 73, 444  
 Muttra Tent Club, 465  
 Nádasdy, Count Fery, 26, 28  
 Napier, D. R., 322  
 Napier, L., 229, 382  
 Nash, R. M., 62  
 Naval and Military Club, 38  
 Naylor, A. M., 64, 123, 139, 263, 282, 283,  
     297  
 Neilson, A., 122, 271, 298, 394  
 Nelder, C., 21  
 Nelson, H. C., 47  
 Neumann, A. H., 101, 103, 111, 127, 128,  
     145, 166, 175, 199, 206, 207, 242, 244, 246,

- 272, 273, 274, 283, 289, 433, 435, 436, 447,  
448, 449, 450  
Nevin, Rev. Dr. R. J., 134, 139, 169, 263,  
267  
Newnham, F. J., 139, 151, 165, 207, 288  
Newton, Captain H., 343  
Nicolls, J. A. (the late), 138  
Nolan, R., 460, 463  
Nopcsa, Baron A., 315  
Norie, Major-General E. M., 71  
Norrie, G. M., 273, 274, 445  
North, M. K., 19  
Northbrook, Earl of, 49  
Norton, Captain C. E. G., 461, 465  
Nugent, Major A., 38, 100, 339, 345  
Nugent, J., 71
- Oakshott, Dr. 151, 191  
O'Brien, H. S., 18  
Occleston, S. V., 344, 477  
O'Donnell, J. C., 400  
Ohlsson, A., 108, 118, 123, 130, 132, 139,  
145, 147, 149, 151, 159, 161, 166, 167, 171,  
174, 180, 187, 189, 191, 193, 199, 208, 215,  
242, 249, 253, 263, 266, 270, 271, 289, 293,  
297, 305, 310, 393, 397, 419, 440  
Oldfield, A. R., 343, 344  
Oldfield, C. B., 203  
Oldham, L. W. S., 335, 336, 346  
Oliver, Captain H. V., 335  
Orr-Ewing, Major J. A., 318, 344, 362, 409  
Osborne, Lieut. F. C., R.N., 6  
Osborne, J. W., 6  
Osmaston, B. B., 444, 445  
Oswell, W. C. (the late), 73, 186, 215, 419,  
440, 447, 450
- Page, R. P., 18  
Paget, Lord Alexander (the late), 17  
Paget, Colonel Arthur, 157, 232, 235, 248,  
250, 253, 257, 273, 274, 305, 437, 453, 456  
Paget, J. Byng, 113, 249, 274, 436  
Paget, Major W. L. H., 274  
Palffy, Count T., 179, 266, 302, 315, 395  
Pallas, —, 220  
Palmer, Major G., 353  
Pank, Major P. Dunell, 203  
Paris Museum, 5, 11, 35, 48, 49, 52, 58, 67,  
87, 90, 108, 113, 118, 119, 123, 126, 142,  
179, 182, 185, 187, 213, 218, 219, 221, 223,  
251, 256, 276, 291, 293, 302, 306, 313, 319,  
326, 402  
Partridge, H., 445
- Paul, Major E. T., 400, 413, 431  
Pausinger, F., 27  
Payne, Colonel G. M., 443  
Payne-Gallwey, A., 144  
Payne-Gallwey, S., 235, 248, 253, 257, 273  
Peake, R. C., 271  
Pearce, Sir W. G., Bart., 18  
Pearse, Arthur, 326  
Pearse, Surgeon-Captain A., 218, 361, 400, 413  
Pease, A. E., 113, 157, 225, 226, 233, 235,  
237, 248, 249, 253, 256, 271, 273, 279, 301,  
305, 315, 364, 455  
Pease, E. H., 350  
Pease, J. A., 264  
Pease, W. E., 225, 237, 350, 364, 387  
Peel, C. V. A., 19, 85, 113, 114, 157, 171,  
232, 233, 235, 249, 253, 257, 274, 299, 301,  
305, 353, 437, 455, 457, 466, 471  
Peel, Hugh, 47, 368  
Pegu Club, Rangoon, 400  
Penrice, G. W., 139, 148, 149, 180, 195, 215,  
216, 268, 285, 294, 302, 311, 394, 456  
Penton, J. E., 341  
Perak Museum, 66, 82, 323  
Percy, Colonel G. A., 161, 176, 195, 208, 283  
Petheram, Sir Comer, 64  
Petherick, Consul J. (the late), 126, 181, 182  
Phelps, E. L., 38, 39, 213, 221, 318, 329,  
335, 339, 345, 362, 373, 379, 381, 382, 408  
Phelps, J. V., 218, 336, 345, 362, 378, 381  
Phillips, Lionel, 147  
Phillips-Wolley, Clive, 48, 96, 223, 326, 359  
Phipps, A. B., 293, 294  
Pigott, J. R. W., 449  
Pike, Arnold, 7, 213, 218, 345, 359, 361, 366,  
367, 378, 381, 408, 479  
Pike, Warburton, 390  
Pilcher, Lieut.-Col. T. D., 268, 466  
Pilkington, H. C., 18  
Pinney, Capt. C. F., 62, 230, 400, 413  
Platt, H. J. H. (the late), 69, 418  
Platt, Mrs. J. E., 19  
Pless, Prince Hans Henry of, 400  
Pole-Carew, Colonel R., C.B., 37, 71, 74, 79,  
322, 372, 400  
Pollen, A. H., 45, 63, 94  
Pollen, S. H., 463  
Ponsonby, J., 17, 120, 242  
Poole, T., 187  
Portland, Duke of, 16, 22, 47, 346, 372, 401,  
406, 431  
Potocki, Count J., 64, 113, 248, 273, 281, 401,  
423, 437, 455, 465, 466

- Potter, F. E., 151, 166, 195, 199, 215, 271, 289  
 Pottinger, Sir H., Bart., 9, 12, 13  
 Poulett-Weatherley, H., 161, 187, 189  
 Powell-Cotton, P. H. G., 38, 213, 218, 232, 248, 253, 257, 273, 298, 318, 322, 329, 335, 344, 361, 377, 378, 381, 400, 408, 437  
 Power, W. S., 6  
 Powerscourt, Viscount, 10, 12, 14, 16, 17, 18, 20, 23, 25, 26, 27, 28, 29, 30, 44, 45, 46, 51, 52, 59, 60, 62, 63, 79, 84, 87, 373, 400, 406, 411, 443, 444  
 Prendergast, W. H., 417  
 Pretoria Museum, 440  
 Prettyjohn, Col., 37  
 Pringle, Captain J. W., 142, 242  
 Proceedings of the Zoological Society, 343, 349, 360, 370, 385, 416, 443  
 Pryer, W. B., 66, 418  
 Przewalski, Colonel, 42  
 Pulley, S., 98, 263, 392, 450  
 Pulteney, Capt. W. P., 466  
 Punjab (21st) Infantry Mess, 382  
 Purvis, Captain J. H., 76, 345
- Queen, Her Majesty the, 449  
 Quicke, Captain F. C., 113, 204, 248, 253, 256, 274, 344, 424, 429  
 Quilter, Ely, 368  
 Q.O. Corps of Guides, Officers' Mess (*see* under Guides)
- Radmore, G. R., 79  
 Radziwill, Prince, 12, 476  
 Rae, J., 390  
 Rankin, C. H., 344  
 Rankin, R., 7, 95, 326, 345, 468  
 Ratcliff, S., 7, 12, 327, 366  
 Ratibor, Duke of, 25  
 Ratibor, Prince Victor, 26  
 Rattray, Major R. H., 203, 229, 318, 321, 341, 383  
 Rawlinson, Major Sir H. S., Bart., 381  
 Rawstorne, L., 394  
 Reade, F. W., 313  
 Redde, Charles (the late), 443  
 Rees, J. D., 412, 444  
 Rehbock, Th., 118, 139, 148, 215, 216, 271, 300  
 Reid, Percy C., 193  
 Rendall, Dr. Percy, 52, 64, 74, 100, 108, 122, 126, 130, 145, 148, 149, 150, 151, 157, 161, 162, 166, 169, 171, 176, 180, 187, 191, 193, 194, 199, 216, 225, 227, 233, 251, 253, 263, 264, 266, 267, 274, 281, 285, 289, 291, 296, 305, 310, 323, 325, 350, 353, 384, 397, 421, 425, 426, 429, 436, 456, 467, 471  
 Renton, A. Leslie, 74, 204, 249, 257, 274, 346, 372, 374, 381, 437  
 Reynolds, Captain H., R.N., 19  
 Rhodes, Cecil, 440  
 Rhodes, Colonel F., D.S.O., 262, 300  
 Rice, Major-General W., 413, 453  
 Richards, G., 118, 134, 139, 147, 151, 162, 166, 167, 169, 172, 187, 191, 194, 264, 266, 284, 289, 293, 297  
 Richardson, J. J., 113, 248, 256, 274  
 Rifles (60th) Mess, 382  
 Ritchie, D. Norman, 176, 263  
 Rivett-Carnac, J. S., 329  
 Roberts, Field-Marshal Lord, V.C., 372  
 Robinson, F. W., 19  
 Robinson, Captain S. L., 413  
 Rodney, Lord, 47, 367  
 Rodon, Major G. S., 332  
 Rogers, A., 11, 44, 367  
 Rogers, Captain J. M., 20  
 Rohan, Prince Lulu, 25  
 Roosevelt, Theodore, 6, 11, 45, 92, 94, 104, 326, 406  
 Root, W. H., 405  
 Rose, J. (the late), 256  
 Rotheram, A. M., 461  
 Rothschild, Hon. Walter, 5, 7, 38, 41, 42, 46, 55, 59, 63, 74, 79, 82, 90, 98, 107, 108, 109, 110, 111, 113, 118, 122, 125, 128, 130, 132, 134, 142, 145, 149, 150, 151, 152, 154, 158, 159, 162, 163, 166, 174, 179, 180, 181, 184, 187, 191, 194, 199, 200, 201, 204, 207, 208, 209, 210, 213, 218, 223, 233, 237, 242, 245, 250, 251, 253, 257, 262, 266, 267, 268, 270, 277, 279, 284, 289, 291, 294, 298, 305, 310, 313, 316, 323, 325, 326, 329, 332, 335, 339, 341, 346, 350, 352, 355, 357, 358, 362, 368, 370, 373, 379, 381, 384, 385, 387, 390, 392, 397, 399, 406, 408, 413, 435, 440, 475, 476  
 Rotton, Captain J. G., 465  
 Roxburghe, Duke of, 169, 263  
 Royal Artillery Mess at Attock, 382  
 Royal Artillery Mess, Woolwich, 382  
 Ruben, C., 118  
 Rudd, C. D., 118, 139, 145, 166, 193, 215, 262, 271, 284, 289, 298, 310, 393, 436, 440  
 Rüppell, Dr. (the late), 148, 196  
 Russel, P., 82, 468  
 Russell, Major B. B., 461

- Russell, E., 179  
 Russia, H.I.M. the Czar of, 404  
 Russia, H.I.M. the Empress of, 372  
 Ryan, J., 64  
 Rylands, W. P., 300  
 Ryley, A., 271
- Sagar-Musgrave, A. M., 195  
 Sagar-Musgrave, R. M., 301  
 Salt, H. (the late), 419  
 Salt, Captain T. A., 339, 381  
 Sandbach, Major A. E., 455  
 Sanders, R. A., 21  
 Sanderson, Colonel G. P. (the late), 443, 477  
 Sangster, Guy H., 201, 291  
 Saunders, J. Carr, 10, 57, 71, 74, 77, 79, 92, 105, 116, 128, 189, 267, 277, 313, 352, 361, 373, 378, 381, 399  
 Sauter, F., 405  
 Sawyer, R. H., 132, 367  
 Saxe-Coburg and Gotha, H.R.H. the Duke of, 7, 11, 16, 25, 26, 27, 28, 29, 30, 33, 47, 63, 73, 76, 84, 132, 154, 175, 204, 284, 301, 315, 329, 341, 361, 362, 378, 394, 406, 448  
 Saxe-Coburg and Gotha, Prince August Leopold of, 29  
 Saxe-Coburg and Gotha, Prince Philip of, 25, 26, 27, 28, 29  
 Saxony, H.M. the King of, 29, 30  
 Scarlett, J. L., 48, 94, 368, 469, 475, 477  
 Scheibler, Count, 9, 12, 45, 74, 105, 116, 176, 225, 232, 242, 249, 256, 273, 276, 302, 306, 316, 326, 327, 367, 392, 400, 428, 435, 436, 443, 448, 455, 457, 461, 464, 466, 477  
 Scheibler, Countess, 431, 437  
 Schopf, Dr. A., 270  
 Schoverling, Daly, and Gales (Messrs.), 44  
 Science and Art Museum, Dublin, 7, 11, 20, 46, 57, 60, 74, 79, 82, 105, 118, 123, 126, 145, 172, 176, 179, 208, 211, 262, 281, 298, 313, 316, 339, 346, 347, 370, 372, 383, 385, 390, 400, 401, 402, 411, 476  
 Science and Art Museum, Edinburgh, 306, 387  
 Selater, P. L., 228, 349  
 Scott, E. D., 289, 294, 301, 393  
 Secretan, B., 138  
 Seely, C. H., 38, 73, 230  
 Selous, F. C., 18, 33, 34, 48, 91, 92, 94, 95, 103, 105, 118, 122, 123, 130, 132, 133, 134, 135, 138, 139, 145, 146, 147, 149, 151, 161, 166, 167, 169, 171, 174, 175, 187, 189, 191, 194, 199, 208, 215, 216, 261, 262, 263, 264, 265, 266, 267, 270, 271, 284, 285, 289, 293, 294, 297, 298, 302, 307, 310, 316, 352, 392, 393, 421, 428, 436, 440, 441, 448, 450, 451, 453, 454, 455, 456  
 Seton-Karr, H., 19, 24, 44, 46, 48, 366  
 Seton-Karr, H. W., 457, 475  
 Severtzoff, Dr., 49  
 Sharp, A. H., 64, 457  
 Shaw, F. G., 138  
 Shaw, Otho, 6, 10, 45, 47, 48, 74, 104, 105, 204, 213, 335, 339, 341, 344, 361, 366, 378, 379, 381, 412, 460  
 Sheard, W. F., 10, 44, 365, 366, 405, 476  
 Sherwill, W. C., 431  
 Shields, G. O., 47  
 Shields, J. O., 366  
 Shirres, Major J. C., D.S.O., 333, 334, 382  
 Simson, F. B., 76  
 Sing, Rajah Gulab, 37  
 Singer, Washington, 74  
 Sitwell, Major C. G. H., 179  
 Sitwell, Lieut.-Colonel W., 271, 299  
 Skeffington-Smyth, R., 429  
 Slaney, Kenyon, 97  
 Smee, Captain, 455  
 Smith, Sir Andrew (the late), 118, 134, 425  
 Smith, Major A. E., 119, 200, 207, 242, 244  
 Smith, Berthold, 359  
 Smith, Dr. Donaldson, 175, 273, 305, 450, 451  
 Smith, G. de H., 413  
 Smith, G. E., 120, 179, 207, 242, 245, 283, 450  
 Smith, Dr. H., 470  
 Smith, Major Hamilton, 150  
 Smith, Captain J. Manners, V.C., C.I.E., 343, 374  
 Smith, L. Gisborne, 64  
 Smith, Norman B., 248, 299, 303, 304, 454, 466  
 Smith, R. Gordon, 5, 445  
 Smitheman, F., 122, 134, 147, 161, 189, 194, 262, 267, 293, 294  
 Smyth, Sir Greville, Bart., 22, 63, 405  
 Sneyd, Ralph, 20  
 Somerset, Hon. H. S., 47  
 South African Museum (*see* Cape Town Museum)  
 Speke, Captain (the late), 164, 176, 179, 285, 293  
 Spence, A. H. Ogilvy, 318, 329  
 Spreckley, Captain J. A., 261  
 Stalkartt, Surgeon W. H. S., R.N., 283  
 Stanley, C. Sloane, 386, 387  
 Staples, F. S., 392

- Stephen, H. L., 108  
 Stephenson, Guy, 19  
 Sterndale, R. A., 332, 463, 468, 471  
 Stevens, Montague, 475, 476  
 Stewart, Major Colvin, 229  
 Stewart, C. M. D., 444  
 Stirling, W., 18  
 Stobart, Captain W. E., 71  
 Stockley, Major V. M., 437  
 Stonor, Hon. E., 444, 445  
 Storey, H., 445  
 Stracey, Captain C. E., 5  
 Strachey, Captain, 346  
 Straker, A. H., 44, 82, 177, 232, 235, 249,  
 274, 286, 301, 304, 305, 399, 436, 450  
 Streatfeild, Major Henry, 76, 431  
 Struben, F., 263, 298, 310, 311  
 Stuart, G. R., 97  
 Studholm, E. C., 31  
 Studley, J. T., 368  
 Sullivan, Lieut.-Colonel G. D. F., 12, 154,  
 203, 204, 229, 399, 408  
 Surtees, H. E., 388  
 Sutton, Lieut., 461  
 Swanzy, F., 180  
 Swayne, Major H. G. C., 112, 113, 157, 170,  
 172, 177, 227, 232, 235, 250, 253, 256, 274,  
 286, 300, 302, 304, 436, 480  
 Swinhoe, R. (the late), 54, 79, 82, 219, 401  
 Swire, C. M., 135, 392  
 Szechenyi, Count, 28  
 Szechenyi, Count Belà, 26, 27  
  
 Tait, Dr. Wm., 6  
 Talbot, Major, 359  
 Tankerville, Earl of, 390  
 Tanner, Colonel H. C. B. (the late), 41, 372  
 Tate, Henry, 17  
 Tate, Mrs. Henry, 17  
 Taylor, Major F. H., 335, 382  
 Taylor, H. Douglas, 74, 76  
 Taylor, J. B., 440  
 Taylor, Captain N. C., 230, 322, 346  
 Taylor, T., 98  
 Teck, Duke of, G.C.B., 378  
 Teleki, Count Arpad, 314, 315  
 Telford, W., 31  
 Tennant, Sir Charles, Bart., 18  
 Tennant, Edward P., 41, 55, 373  
 Ternan, Colonel Trevor, 119, 120, 158, 163,  
 179, 185, 197, 242, 452  
 Thatcher, G. G., 379  
 Thebaw, King (the late), 443  
  
 Thellusson, Hon. F., 11, 46, 94, 405  
 Thomas, Captain E. A. D'Arcy, 463  
 Thomas, J. H., 7, 24, 225, 237, 279  
 Thomas, Oldfield, 228, 244, 330  
 Thomson, A. Y., 413, 431  
 Thomson, Joseph (the late), 241  
 Thorold, Dr. W. G., 42  
 Thurlow, Lord, 6  
 Thynne, Hon. T., 122, 135, 195, 208, 215,  
 284, 285, 456  
 Thynne, U. O., 205  
 Tichborne, Sir H. D., Bart., 76, 113, 232,  
 249, 273, 305, 332, 436  
 Tickell, Captain E. J., 120, 245  
 Tidswell, Captain E. C., 352  
 Timins, Captain C. S., 114, 249, 273, 298, 306,  
 332, 413  
 Timmins, H., 122, 139, 161, 176, 194, 261,  
 267, 294  
 Tolhurst, F. B., 10, 44  
 Tollemache, Hon. S., 367, 401, 412  
 Tolman, J. C., 476  
 Tompson, E. W., 297, 421  
 Tompson, Captain W., 413  
 Tonnerre, L. Fabre, 431  
 Toppin, H., 353  
 Tottenham, Captain R. L., 329, 345, 382  
 Townley-Parker, Captain (the late), 475  
 Townshend, E. Lee, 113, 273  
 Trapmann, A. G. (the late), 323  
 Trauttmansdorff, Count Ferdinand, 26, 45  
 Travancore, Maharaja of, G.C.S.I., 38, 62,  
 79, 213, 229, 337, 343, 344, 352, 362, 372,  
 378, 381, 411  
 Travers, Dr., 423  
 Trevor, A. S., 235, 253, 273, 437  
 Trevor, Captain H., 213, 229, 334, 343, 361,  
 379  
 Trollope, Major F., 193  
 Truninger, L., 401, 413  
 Tulloch, W. A., 46  
 Turkey, H.I.M. the Sultan of, 460  
 Turner, Arthur W., 411  
 Turner-Turner, J., 5, 47, 92, 95, 327, 366  
 Tweedmouth, Lord, 15, 16, 17  
 Twopeny, C. D., 64, 154, 204, 281  
  
 Ubsdell, J. E. (the late), 204, 329  
  
 Vandeleur, Captain C. B., 213, 218, 229, 318,  
 344, 361, 409  
 Vandeleur, C. F. S., D.S.O., 185, 208, 456  
 Vander-Byl, —, 129

- Vander-Byl, C. F., 229  
 Vander-Byl, P. B., 11, 47, 139, 195, 229, 232, 249, 257, 274, 302, 305, 311, 316, 327, 437  
 Van-Ness, W., 134, 263, 266, 294, 298, 311, 435  
 Vans-Agnew, A., 98  
 Vansittart, H., 329  
 Van-Son, H., 82, 417, 423, 426, 432  
 Van-Son, J. C., 82  
 Van Zeller, F., 297  
 Varndell, C. R. (the late), 439  
 Vaughan, J., 263, 344  
 Vaughan, J. E., 318  
 Veernhof, Colonel, 423  
 Venables-Kyrke, R. H., 191, 367, 393  
 Verschoyle, Captain E. G., 46, 47, 367  
 Vertue, E. B., 421  
 Victoria (B. C.) Museum, 326, 366, 469  
 Villiers, Captain C. H., 120, 274, 305  
 Vincent, B., 232, 253, 274, 346, 381, 399  
 Vivian, A. Pendarves, 45, 469  
 Vivian, Colonel Ralph, 46, 47, 85, 105, 106, 109, 155, 169, 176, 239, 250, 267, 286, 301, 395, 406, 437, 452  
 Von André, A., 26, 27, 29  
 Von Massow, Baron, 411  
 Vryburg Club, 215  
  
 Wade-Dalton, Lieut.-Col. H., 64, 74, 281, 344, 345, 384, 463  
 Wahlberg, J., 148  
 Wahrmann, R., 114, 249, 250, 273, 305, 401, 437  
 Wait, Capt. A. M'Lean, 289  
 Waley, A., 71, 82, 412  
 Walker, Surgeon-General, 153  
 Walker, A. Barclay, 476  
 Walker, H. G., 6  
 Walker, Sir Peter, Bart., 6, 10, 11, 12, 45, 94, 105, 327, 367, 400, 431, 445, 475, 476  
 Walker, W. H., 16, 18, 445, 463  
 Wallace, A. R., 69  
 Walshe, F. W. H., 38, 218, 318, 337, 361, 379, 381  
 Walter, A. J., 325, 401, 412  
 Walter, Major R. L., 344  
 Ward, Major A. E., 37, 62, 76, 82, 213, 318, 321, 329, 335, 341, 343, 361, 379, 381, 465, 468, 476  
 Ward, Hon. John, 52, 172, 216, 263, 267, 301, 363, 364  
 Ward, Rowland, 100, 127, 139, 141, 145, 155, 157, 158, 185, 189, 209, 216, 218, 225, 226, 235, 237, 253, 256, 270, 279, 291, 294, 311, 368, 370, 388, 393, 399, 408, 421, 445, 451, 456, 463, 468, 475, 476, 479  
 Ward, Hon. R. A., 52, 135, 171, 208, 226, 237, 263, 264, 267, 279, 364, 373, 378, 387  
 Warrand, Colonel A. J., 85  
 Warrand, H. M., 84  
 Waterford, Marquis of (the late), 443  
 Watkins, F., 394  
 Watkinson, F., 122  
 Webb, W. F. (the late), 215, 300, 374, 392  
 Webster, G., 18  
 Welch, Captain N. C., 107, 148  
 Welch, Lieut. G. H., R.N., 246  
 Wellby, Captain M. S., 344, 361, 451  
 Wellcome, H. S., 92, 94  
 Weller-Poley, E., 17  
 Wellington, Duke of, 37  
 Welsh, C. N., 232  
 Wenlock, Lord, G.C.I.E., 412, 444, 445  
 Werne, 182  
 Wernher, Julius, 18  
 Westmacott, C. R., 31  
 Westminster, Duke of, 6, 8, 10, 23, 46, 60, 372, 379, 440, 448, 450, 479  
 Whitaker, J., 7, 57, 71, 104, 169, 281, 399, 428  
 Whitaker, J. J. S., 25, 225, 226, 237, 278, 279, 364  
 Whitby, Lieut.-Colonel F. H., 72, 73, 400, 461, 465  
 White, A., 466  
 White, Captain E. D., 76  
 White, Captain G. Dalrymple, 45, 46, 367, 470  
 White, Surgeon-Captain W., 476  
 White, Captain W. Westropp, 476  
 Whitehouse, J. H., 11  
 Whitehouse, Langford, 423  
 Whitely, H., 99  
 Whitestone, Surgeon-Capt. C. W. H., 411  
 Whitney, H. P., 63  
 Whittall, F. E., 58  
 Whittall, H. O., 34, 353, 477  
 Wilczek, C. H., 347  
 Wilding, Captain C. A., 108, 397  
 Wilkin, Rupert, 31  
 Wilkinson, Capt. P. S., 277  
 Williams, Surgeon-Capt. E. M'K., 73, 462, 465, 466  
 Williams, H. H., 175, 284, 394  
 Williams, J. G., 85  
 Williams, Capt. L. O., 147, 174, 195, 199, 283



- Williams, Rhys, 386, 387  
 Williams, Major W. H., 175, 185, 208, 245  
 Williamson, F. C., 5, 368  
 Williamson, H., 385  
 Williamson, Capt. W. H., 235, 306, 361  
 Willoughby, Sir John, Bart., 134, 141, 169,  
     176, 194, 208, 244, 245, 257, 266, 275, 285,  
     300, 311, 392, 393, 436, 437, 454, 457  
 Willshire, W., 251  
 Wilson, Mr. ("Mountaineer"), 81, 328  
 Wilson, A., R.N., 6  
 Wilson, Captain F. A., 156  
 Windischgraetz, Prince Hugo, 25  
 Wing, Major, F. D. V., 71  
 Wingfield, W. J. R., 463  
 Winwood, W. Q., 71  
 Wolverton, Lord, 250, 256, 273, 401, 413,  
     457  
 Wood, Major C. B., 400  
 Wood, Gordon, 19  
 Wood, Surgeon-Captain H. S., 82, 417, 418  
 Wood, J. L., 343  
 Wood, J. W., jun., 368  
 Wood, Philip, 463  
 Wood, T. W., jun., 10  
 Woodd, Basil H., 456  
 Wordsworth, R., 62  
 Wormold, F. W., 345  
 Worthington, F. V., 161, 261, 262, 266  
 Wray, J., 116  
 Wrey, G., 45, 96, 367, 406  
 Yellowby, W., 454  
 York, H.R.H. the Duke of, 449  
 Young, J. G. K., 315  
 Young, J. W. R., 366  
 Yule, James, 122, 171, 428  
 Yule, John, 122, 189, 209, 285, 289, 292, 293,  
     300  
 Zamoyski, Count T., 437, 454  
 Zoological Society (*see* under Proceedings)

# INDEX OF SPECIES

	PAGE		PAGE
Abyssinian Buffalo	395	Babirusa . . .	426
„ Bushbuck	286	<i>Babirusa alfurus</i>	426
„ Duiker	148	Banded Duiker .	152
„ Ibex .	350	Banting . . .	416
„ Oribi .	162	Barasingh. <i>See</i> Hangul.	
Addax . . .	278	Barbary Red Deer	35
<i>Addax nasomaculatus</i>	278	Barking Deer .	31
Addra Gazelle .	250	Basilan Sambar .	67
<i>Æpyceros melampus</i>	206	Bavian Deer . . .	69
„ <i>petersi</i>	206, 209	Bay Duiker	151
African Elephant .	446	Bears .	473
„ Rhinoceros	433	Beatrix Oryx .	276
Alaskan Bighorn .	368	Bedford's Deer	35
<i>Alces machlis</i> .	8	Beira . . .	258
Alpine Ibex .	347	Beisa	272
Altai Wapiti	49	Bharal .	360
American Bighorn	365	Bison .	403
„ Bison .	405	Blackbuck .	202
„ Deer	91	Black-tailed Deer .	96
<i>Ammodorcas clarkei</i>	252	Blesbok . . .	131
Ammon Sheep . .	375	Blue Duiker .	149
Ancient British Red Deer .	23	Bohor Reedbuck .	196
„ Continental Red Deer	30	Bongo „	287
Anoa . . . . .	402	Bontebok	129
<i>Antidorcas euchores</i>	214	<i>Bos bison</i> .	405
<i>Antilocapra americana</i> .	104	„ <i>bonasus</i> . . . .	403
<i>Antelope bezoartica</i>	202	„ <i>bubalis</i> . . .	398
Arabian Gazelle	227	„ <i>caffer</i> . . .	391
„ Ibex .	348	„ „ <i>equinoctialis</i>	395
„ Tahr . . . .	330	„ „ <i>brachyceros</i>	396
Armenian Muflon .	384	„ „ <i>planiceros</i> .	396
Arna	398	„ „ <i>nanus</i> . . .	396
Arui .	363	„ <i>depressicornis</i> .	400
Asiatic Ibex .	342	„ <i>frontalis</i> . . .	415
Astor Markhor	333	„ <i>gaurus</i> . . . .	410
Atlas Gazelle	226	„ <i>grunniens</i>	407
Aurochs. <i>See</i> Bison.		„ <i>indicus</i> . . . .	419
Axis . . . . .	72	„ <i>sondaicus</i> . . .	416

	PAGE		PAGE
<i>Bos taurus</i> . . . . .	419	<i>Cephalophus abyssinicus</i> . . . . .	148
<i>Boselaphus tragocamelus</i> . . . . .	280	„ <i>coronatus</i> . . . . .	148
Brindled Gnu . . . . .	136	„ <i>doriae</i> . . . . .	152
Broad-Horned Antelope . . . . .	287	„ <i>dorsalis</i> . . . . .	151
Bubaline Hartebeest . . . . .	106	„ <i>grinmi</i> . . . . .	146
<i>Bubalis boselaphus</i> . . . . .	106	„ <i>maxwelli</i> . . . . .	150
„ <i>cama</i> . . . . .	117	„ <i>monticola</i> . . . . .	149
„ <i>cokei</i> . . . . .	115	„ <i>natalensis</i> . . . . .	150
„ <i>jacksoni</i> . . . . .	119	„ <i>syriaculcor</i> . . . . .	152
„ <i>lichtensteini</i> . . . . .	121	<i>Cervicapra arundinum</i> . . . . .	192
„ <i>major</i> . . . . .	107	„ <i>bohor</i> . . . . .	196
„ <i>swaynei</i> . . . . .	112	„ <i>fulvorufula</i> . . . . .	198
„ <i>tora</i> . . . . .	109	„ „ <i>chanleri</i> . . . . .	200
„ „ <i>neumanni</i> . . . . .	111	„ „ <i>subalpina</i> . . . . .	199
<i>Budorcas taxicolor</i> . . . . .	325	„ <i>redunca</i> . . . . .	201
Buffaloes . . . . .	391	<i>Cervulus crinifrons</i> . . . . .	83
Buffon's Kob . . . . .	183	„ <i>fee</i> . . . . .	83
Burchell's Rhinoceros . . . . .	439	„ <i>lachrymans</i> . . . . .	82
Burmese Serow . . . . .	323	„ <i>muntjac</i> . . . . .	81
„ Stag . . . . .	78	<i>Cervus affinis</i> . . . . .	40
Bushbuck . . . . .	282	„ <i>albirostris</i> . . . . .	41
		„ <i>axis</i> . . . . .	72
Cabul Markhor . . . . .	340	„ <i>barbarus</i> . . . . .	15
Cape Buffalo . . . . .	391	„ <i>canadensis</i> . . . . .	42
„ Bush-Pig . . . . .	425	„ „ <i>asiaticus</i> . . . . .	49
„ Hartebeest . . . . .	117	„ „ <i>luohdorfi</i> . . . . .	50
<i>Capra caucasica</i> . . . . .	356	„ <i>cashmirianus</i> . . . . .	36
„ <i>cylindricornis</i> . . . . .	358	„ „ <i>yarcandensis</i> . . . . .	37, 39
„ <i>falconeri</i> . . . . .	333	„ <i>dama</i> . . . . .	56
„ „ <i>cashmiriensis</i> . . . . .	333	„ <i>duvaucelli</i> . . . . .	75
„ „ <i>jerdoni</i> . . . . .	340	„ <i>elaphus</i> . . . . .	14
„ „ <i>megaceros</i> . . . . .	340	„ „ <i>maral</i> . . . . .	32
„ <i>hircus agagrus</i> . . . . .	353	„ <i>eldi</i> . . . . .	78
„ „ <i>blythi</i> . . . . .	351	„ <i>giganteus</i> . . . . .	59
„ <i>ibex</i> . . . . .	347	„ <i>hippelaphus</i> . . . . .	68
„ <i>nubiana</i> . . . . .	348	„ „ <i>moluccensis</i> . . . . .	69
„ <i>pallasi</i> . . . . .	350	„ <i>hortulorum</i> . . . . .	54
„ <i>pyrenaica</i> . . . . .	354	„ <i>kuhli</i> . . . . .	69
„ <i>sibirica</i> . . . . .	342	„ <i>mesopotamicus</i> . . . . .	58
„ <i>vali</i> . . . . .	350	„ <i>moluccensis</i> . . . . .	69
<i>Capreolus pygargus</i> . . . . .	86	„ <i>porcinus</i> . . . . .	70
„ <i>vulgaris</i> . . . . .	83	„ <i>schomburgki</i> . . . . .	77
Caribou . . . . .	1	„ <i>sica</i> . . . . .	51
Caspian Red Deer . . . . .	15, 32	„ <i>taevanus</i> . . . . .	53
Caucasian Bharal . . . . .	358	„ <i>unicolor</i> . . . . .	61
„ Ibex . . . . .	356	„ „ <i>dejeani</i> . . . . .	67
<i>Cemas argyrochaetus</i> . . . . .	319	„ „ <i>equinus</i> . . . . .	65
„ <i>caudatus</i> . . . . .	319	„ „ <i>nigricans</i> . . . . .	67
„ <i>cinereus</i> . . . . .	319	„ „ <i>philippinus</i> . . . . .	67
„ <i>goral</i> . . . . .	317	„ „ <i>swinhoei</i> . . . . .	66
„ <i>griseus</i> . . . . .	319	„ <i>xanthopygus</i> . . . . .	35
Central African Buffalo . . . . .	396	Ceylon Buffalo . . . . .	401

	PAGE		PAGE
Ceylon Sambar . . . . .	64	<i>Elaphurus davidianus</i> . . . . .	89
Chamois . . . . .	314	Eld's Deer . . . . .	78
Chanler's Reedbuck . . . . .	200	Elephant, African . . . . .	446
Chiru . . . . .	212	„ Indian . . . . .	442
Chita . . . . .	471	<i>Elephas africanus</i> . . . . .	446
Chital . . . . .	72	„ <i>indicus</i> . . . . .	442
Clarke's Gazelle . . . . .	252	„ <i>primigenius</i> . . . . .	452
Clouded Leopard . . . . .	468	Elk . . . . .	8
<i>Cobus cob</i> . . . . .	183	English Park Red Deer . . . . .	22
„ <i>defassa</i> . . . . .	178	Equine Deer . . . . .	65
„ „ <i>penricei</i> . . . . .	180	European Bison . . . . .	403
„ „ <i>unctuosus</i> . . . . .	180	„ Lynx . . . . .	470
„ <i>ellipsiprymnus</i> . . . . .	173	„ Mouflon . . . . .	386
„ <i>lichi</i> . . . . .	186	„ Roe . . . . .	83
„ <i>leucotis</i> . . . . .	182	Extinct Giant Fallow Deer . . . . .	59
„ <i>maria</i> . . . . .	181	Fallow Deer . . . . .	56
„ <i>thomasi</i> . . . . .	185	<i>Felis concolor</i> . . . . .	469
„ <i>vardoni</i> . . . . .	188	„ <i>leo</i> . . . . .	453
Coke's Hartebeest . . . . .	115	„ <i>lynx</i> . . . . .	470
<i>Connochates gnu</i> . . . . .	143	„ <i>nebulosa</i> . . . . .	468
„ <i>taurinus</i> . . . . .	136	„ <i>onca</i> . . . . .	469
„ „ <i>albojubatus</i> . . . . .	141	„ <i>pardus</i> . . . . .	464
Corsican Red Deer . . . . .	15	„ <i>tigris</i> . . . . .	458
<i>Cynalurus jubatus</i> . . . . .	471	„ <i>uncia</i> . . . . .	467
Cyprian Mouflon . . . . .	385	Formosan Sika . . . . .	53
Dama Gazelle . . . . .	251	„ Sambar . . . . .	66
<i>Damaliscus albifrons</i> . . . . .	131	Fringe-eared Beisa . . . . .	275
„ <i>corrigum</i> . . . . .	126	Four-horned Antelope . . . . .	153
„ „ <i>jimela</i> . . . . .	127	Gaur . . . . .	410
„ „ <i>tiang</i> . . . . .	126	Gayal . . . . .	415
„ <i>hunteri</i> . . . . .	124	<i>Gazella arabica</i> . . . . .	227
„ <i>lunatus</i> . . . . .	133	„ <i>bennetti</i> . . . . .	228
„ <i>pygargus</i> . . . . .	129	„ <i>cuvieri</i> . . . . .	226
Damaraland Duiker . . . . .	159	„ <i>dama</i> . . . . .	251
Decula Antelope . . . . .	286	„ „ <i>mhorr</i> . . . . .	251
Defassa Sing-Sing . . . . .	180	„ <i>dorcas</i> . . . . .	224
Derbian Eland . . . . .	312	„ <i>granti</i> . . . . .	243
Dibatag . . . . .	252	„ <i>gutturosa</i> . . . . .	221
Dik-Dik Antelopes . . . . .	156	„ <i>isabella</i> . . . . .	238
Domestic Goat . . . . .	353	„ <i>leptoceros</i> . . . . .	236
„ Oxen . . . . .	418	„ <i>pelzelni</i> . . . . .	234
„ Sheep . . . . .	387	„ <i>petersi</i> . . . . .	246
Dorcas Gazelle . . . . .	224	„ <i>picticaudata</i> . . . . .	217
<i>Dorcatragus melanotis</i> . . . . .	258	„ <i>przewalskii</i> . . . . .	219
Duiker . . . . .	146	„ <i>ruficollis</i> . . . . .	250
Dwarf Antelopes . . . . .	156	„ <i>rufifrons</i> . . . . .	240
„ Buffalo . . . . .	396	„ <i>sæmmerringi</i> . . . . .	247
Dybowski's Sika . . . . .	54	„ <i>spekei</i> . . . . .	231
East Caucasian Tur . . . . .	358	„ <i>subgutturosa</i> . . . . .	222
Edmi Gazelle . . . . .	226	„ <i>thomsoni</i> . . . . .	241
Eland . . . . .	308	„ <i>tilonura</i> . . . . .	239

	PAGE		PAGE
Gemsbuck . . . . .	269	Indian Sambar . . . . .	61
Gerenuk . . . . .	255	Inyala. <i>See</i> Nyala.	
German Red Deer . . . . .	25	Irish Elk . . . . .	59
<i>Giraffa camelopardalis</i> . . . . .	101	„ Red Deer . . . . .	20
„ <i>capensis</i> . . . . .	102	Isabella Gazelle . . . . .	238
Giraffe . . . . .	101		
Goa . . . . .	217	Jackson's Hartebeest . . . . .	119
Goat . . . . .	351	Jaguar . . . . .	469
Goral . . . . .	317	Japanese Sika . . . . .	51
Grant's Gazelle . . . . .	243	„ Serow or Goral . . . . .	319
Gray Rhebok . . . . .	190	Javan Ox . . . . .	416
Gray's Waterbuck . . . . .	181	„ Rhinoceros . . . . .	432
Greater Kudu . . . . .	296	„ Rusa . . . . .	68
Grysbuck . . . . .	167		
		Kamschatkan Bighorn . . . . .	319
Haggard's Oribi . . . . .	163	Kansu Takin . . . . .	326
Hairy-fronted Muntjac . . . . .	83	Kashmir Stag . . . . .	36
Hangul . . . . .	36	Kirk's Dik-Dik . . . . .	158
<i>Haploceros montanus</i> . . . . .	326	Klipspringer . . . . .	170
Harnessed Antelope. <i>See</i> Bushbuck.		Kob . . . . .	185
Hartebeest . . . . .	106	Kongoni . . . . .	115
<i>Hemitragus hylocrius</i> . . . . .	331	Korrigum . . . . .	126
„ <i>jayakeri</i> . . . . .	330	Kudu . . . . .	296
„ <i>jemlaicus</i> . . . . .	328		
Hemprich's Dik-Dik . . . . .	159	Leopard . . . . .	464
Heuglin's Gazelle . . . . .	239	Lesser Kudu . . . . .	303
Himalayan Goral . . . . .	317	„ Reedbuck . . . . .	198
„ Ibex . . . . .	342	Lhasa Stag . . . . .	211
„ Serow . . . . .	320	Lichi . . . . .	186
„ Tahr . . . . .	328	Lichtenstein's Hartebeest . . . . .	121
Hippopotamus . . . . .	421	Lion . . . . .	453
<i>Hippopotamus amphibius</i> . . . . .	421	„ Skins . . . . .	454
„ <i>liberiensis</i> . . . . .	421	„ Skulls . . . . .	456
<i>Hippotragus equinus</i> . . . . .	265	<i>Lithocranius walleri</i> . . . . .	255
„ <i>niger</i> . . . . .	260	Livingstone's Antelope . . . . .	165
Hog Deer . . . . .	70	Loder's Gazelle . . . . .	236
Hungarian Red Deer . . . . .	25	Luzon Sambar . . . . .	67
Hunter's Hartebeest . . . . .	124	Lydenburg Reedbuck . . . . .	199
Hunting-Leopard . . . . .	471	Lynx . . . . .	470
Hyæna . . . . .	472		
Hybrid Hartebeest . . . . .	120	<i>Madoqua damarensis</i> . . . . .	159
		„ <i>guentheri</i> . . . . .	156
Ibex . . . . .	354	„ <i>hemprichiana</i> . . . . .	159
Impala . . . . .	206	„ <i>kirki</i> . . . . .	158
Indian Antelope . . . . .	202	„ <i>phillipsi</i> . . . . .	156
„ Buffalo . . . . .	398	„ <i>saltiana</i> . . . . .	155
„ Elephant . . . . .	442	„ <i>swaynei</i> . . . . .	156
„ Gazelle . . . . .	228	Malayan Sambar . . . . .	65
„ Leopard . . . . .	464	Mammoth Elephant . . . . .	452
„ Hunting-Leopard . . . . .	471	Manchurian Wapiti . . . . .	50
„ Muntjac . . . . .	81	Maral . . . . .	32
„ Rhinoceros . . . . .	430	Marco Polo's Sheep . . . . .	371

	PAGE		PAGE
Markhor	333	<i>Oryx leucoryx</i>	277
Marsh-Deer	97	<i>Ovibos moschatus</i>	389
Maxwell's Duiker	150	<i>Ovis ammon</i>	375
<i>Mazama americana</i>	91	„ „ <i>hodgsoni</i>	377
„ „ <i>mexicana</i>	92	„ „ <i>aries</i>	387
„ „ <i>antisiensis</i>	99	„ „ <i>canadensis</i>	365
„ „ <i>bezoartica</i>	99	„ „ <i>dalli</i>	368
„ „ <i>columbiana</i>	96	„ „ <i>nivicola</i>	369
„ „ <i>dichotoma</i>	97	„ „ <i>lervia</i>	363
„ „ <i>hemionus</i>	93	„ „ <i>musimon</i>	386
„ „ <i>nemorivaga</i>	100	„ „ <i>nahuva</i>	360
Mesopotamian Fallow Deer	58	„ „ <i>orientalis</i>	384
Mexican Deer	92	„ „ <i>ophion</i>	385
Mhorr	251	„ „ <i>poli</i>	371
Moluccan Rusa	69	„ „ <i>vignei</i>	380
Mongolian Argali	379	„ „ <i>cycloceros</i>	384
„ „ Gazelle	221		
Moose	8	Pampas Deer	99
<i>Moschus moschiferus</i>	100	Para	70
Mountain Reedbuck	198	<i>Pantholops hodgsoni</i>	212
Muffon	384	Pekin Sika	54
Mule-Deer	93	<i>Pelea capreolus</i>	190
Muntjac	81	Pelzeln's Gazelle	234
Musk-Deer	100	Penrice's Waterbuck	180
„ Ox	389	Père David's Deer	89
		Persian Gazelle	222
Nagor Reedbuck	201	„ „ Wild Goat	351
Narwhal	479	Peruvian Guemal	99
Natal Duiker	150	Peters's Gazelle	246
<i>Nemorhædus bubalinus</i>	320	<i>Phacochærus æthiopicus</i>	427
„ „ <i>sumatrensis</i>	323	Philippine Deer	67
„ „ <i>crispus</i>	319	Pir Panjal Markhor	333
<i>Nesotragus livingstonianus</i>	165	Polar Bear	475
„ „ <i>moschatus</i>	164	<i>Potamochærus chæropotamus</i>	425
Neumann's Hartebeest	111	„ „ <i>porcus</i>	425
New Zealand Red Deer	31	Prong-horn	104
Nilgai	280	Przewalski's Gazelle	219
Nilgiri Tahr	331	Puku	188
Norwegian Red Deer	24	Puma	469
Nyala	288	Pyrenean Ibex	354
Nyasaland Gnu	138		
		<i>Rangifer tarandus</i>	1
<i>Oreotragus saltator</i>	170	Red Deer	14
Oribi	160	„ „ Duiker	150
<i>Oribia haggardi</i>	163	Red-fronted Gazelle	240
„ „ <i>montana</i>	162	Red River-Hog	425
„ „ <i>nigricaudata</i>	163	Reedbuck	192
„ „ <i>scoparia</i>	160	Reindeer	1
<i>Oryx beatrix</i>	276	<i>Rhaphiceros campestris</i>	168
„ „ <i>beisa</i>	272	„ „ <i>melanotis</i>	167
„ „ <i>callotis</i>	275	<i>Rhinoceros bicornis</i>	433
„ „ <i>gazella</i>	269	„ „ <i>simus</i>	439

	PAGE		PAGE
<i>Rhinoceros sondaicus</i> . . . . .	432	Tahr . . . . .	328
„ <i>sumatrensis</i> . . . . .	432	Takin . . . . .	325
„ <i>unicornis</i> . . . . .	430	<i>Taurotragus derbianus</i> . . . . .	312
Roan Antelope . . . . .	265	„ <i>oryx</i> . . . . .	308
Rocky Mountain Goat . . . . .	326	Tenasserim Muntjac . . . . .	83
Roe Deer . . . . .	83	Tetel Hartebeest . . . . .	109
Rooi Rhebok . . . . .	198	<i>Tetracerus quadricornis</i> . . . . .	153
<i>Rupicapra tragus</i> . . . . .	314	Thameng . . . . .	78
		Thomson's Gazelle . . . . .	241
Sable Antelope . . . . .	260	Thorold's Deer . . . . .	41
Saiga . . . . .	210	Tiang . . . . .	126
<i>Saiga tatarica</i> . . . . .	210	Tibet Antelope . . . . .	212
Salt's Dik-Dik . . . . .	155	„ Argali . . . . .	377
Sambar Deer . . . . .	61	„ Gazelle . . . . .	217
Sassaby . . . . .	133	„ Muntjac . . . . .	82
Schomburgk's Deer . . . . .	77	Tiger . . . . .	458
Scotch Red Deer . . . . .	16	„ Skins . . . . .	460
Senegal Gazelle . . . . .	240	„ Skulls . . . . .	463
Senegambian Eland . . . . .	312	Topi „ . . . . .	127
Serow . . . . .	323	Tora „ . . . . .	109
Shapu . . . . .	380	<i>Tragelaphus angasi</i> . . . . .	288
Sheep . . . . .	360	„ <i>decula</i> . . . . .	286
Shou . . . . .	40	„ <i>euryceros</i> . . . . .	287
Siberian Argali . . . . .	375	„ <i>gratus</i> . . . . .	290
„ Roe . . . . .	86	„ <i>scriptus</i> . . . . .	282
Sig . . . . .	112	„ <i>spekei</i> . . . . .	292
Sing-Sing Waterbuck . . . . .	178	„ <i>syvaticus</i> . . . . .	283
Situtunga . . . . .	292	Tusks, Boar . . . . .	423
Snow Leopard . . . . .	467	„ Elephant . . . . .	443
Soemmerring's Gazelle . . . . .	247	„ Hippopotamus . . . . .	421
Somali Dik-Diks . . . . .	156	„ Musk-Deer . . . . .	100
„ Gazelles . . . . .	{ 231	Udad . . . . .	363
	{ 235	Uganda Kob . . . . .	185
Spanish Tur . . . . .	354	Urial . . . . .	380
„ Red Deer . . . . .	24	<i>Ursidae</i> . . . . .	473
Speke's Gazelle . . . . .	231		
Springbuck . . . . .	214	Vaal Rhebok . . . . .	190
Steinbuck . . . . .	168	Virginian Deer . . . . .	91
<i>Strepsiceros imberbis</i> . . . . .	303		
„ <i>kudu</i> . . . . .	296	Wallachian Sheep . . . . .	388
Suleman Markhor . . . . .	358	Waller's Gazelle . . . . .	255
Sumatran Rhinoceros . . . . .	432	Walrus . . . . .	478
„ Serow . . . . .	323	Wapiti . . . . .	42
<i>Sus chæropotamus</i> . . . . .	425	Wart-Hog . . . . .	427
„ <i>cristatus</i> . . . . .	422	Waterbuck . . . . .	173
„ <i>porcus</i> . . . . .	425	West African Buffalo . . . . .	396
„ <i>scrofa</i> . . . . .	422	„ Bush-Pig . . . . .	425
Swamp-Deer . . . . .	75	„ Harnessed Antelope . . . . .	290
Swayne's Dik-Dik . . . . .	156	„ Hartebeest . . . . .	107
„ Hartebeest . . . . .	112	„ Oribi . . . . .	163
Swift Gazelle . . . . .	251	West Caucasian Tur . . . . .	356
Szechuan Sambar . . . . .	67	West of England Red Deer . . . . .	21

	PAGE		PAGE
White-bearded Gnu . . .	141	Yak . . . . .	407
White-eared Kob . . .	182	Yarkand Gazelle . . .	222
White Oryx . . .	277	„ Stag . . . . .	39
„ Rhinoceros . . .	439	Yellow-backed Duiker . . .	152
White-tailed Deer . . .	91		
White-tailed Gnu . . .	143	Zanzibar Antelope . . . . .	164
Wild Boar . . . . .	422	Zebu . . . . .	418
Wood Brocket . . . . .	100	Zubr . . . . .	403

THE END



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